

Benefits and Costs of Participation in MOOC-Based Alternative Credentials

MICROMASTERS & SPECIALIZATIONS



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Benefits and Costs of Participation in MOOC-Based Alternative Credentials:

MicroMasters and Specializations

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Key Takeaways

Research Question: *Will MOOC-based alternative credentials bring learners career, financial, educational, or other benefits that outweigh the direct costs and opportunity costs of participation?*

Data Sources: 25,891 survey responses were collected from learners embarking on six Coursera Specializations and 2 edX MicroMasters offered by public and private universities in the U.S. between February 2017 and September 2021. 2,288 survey responses were collected from participants as they completed their programs between April 2018 and November 2022. The programs were on topics related to business, marketing, professional advancement, finance, or data science.

Characteristics of Learners Engaging in MicroMasters and Specializations

- Learners who engaged in the MicroMasters and Specialization programs began them at an average age of 33 years and completed them at an average age of 34 years. They ranged in age from 7 to 101 years.
- Approximately 2/5 of the learners were White and approximately 1/3 were Asian. 6%-8% were Black/African American and another 5%-6% were multiracial. 14% identified as Hispanic.
- Learners who began the programs lived in 189 different countries, 25% in the U.S. and 15% in India.
- Over 3/4 of the learners reported being fluent or very good at English.
- Over 3/4 of the learners had already earned a Bachelor's or higher degree; approximately 2/5 had earned a graduate degree.
- Less than 1/4 of the learners were full-time or part-time students in a formal degree program.
- Half or more of the learners were employed full-time; an additional 10% or more were business owners.
- Learners who completed a MicroMasters or Specialization program were generally similar in demographics to those who began one of these programs except that they were:
 - More likely to be female (46% vs. 38%) and fluent/very good in English (83% vs. 76%).
 - Less likely to be a student (18% vs. 24%).
- Median annual income across all program completers was \$40,000. For U.S. residents, the median annual income was \$80,000—above the median annual income for the general population (\$70,784 in 2021).
- 16% of the Specializations completers and 2% of MicroMasters completers were asked to take the program by their employer.
- 16% of the program completers received financial aid from the platform providers.

Expected Benefits vs. Reported Benefits

The most frequently *anticipated* benefits from completing the programs were: improving job performance (41% of respondents), improving applications to a different job (28%), and learning something new (27%). The most frequently *reported* benefit from completing the programs was learning something new (94%), followed by improvement in job performance (38%), and improving English language skills (23%).

- Only 27% of learners anticipated learning something new when embarking on the programs, but 94% of completers reported this as a benefit.
- 41% of learners anticipated that the programs would help improve their job performance, and 38% of completers reported this as a benefit.
- 18% of learners anticipated that the programs would help them improve their English language skills, while 23% of the completers reported this as a benefit.
- 25% of learners expected the programs would help them network with other professionals, but only 14% of completers reported this as a benefit.
- 22% of learners expected the programs would help them start their own business, but only 12% of completers reported this as a benefit.
- 13% of learners expected the programs would improve their applications to a first job, and 12% of completers reported this as a benefit. 6% of the completers also indicated that the courses were an important factor for their employer in getting their first job.
- 28% of learners anticipated that the programs would help them apply to a different job. 12% of completers reported the program helped them improve their application to a different employer, and 8% reported that the program was an important factor for their employer in moving them to a different job.

- 15% of learners anticipated the programs would improve their applications to a degree program, and 9% of completers reported this as a benefit.
- 12% of learners expected the program would help them obtain a job promotion in their current organization, but only 5% of completers reported this as a benefit.
- 10% of learners anticipated a pay raise as a result of taking the courses. 5% of completers reported this as a benefit, and 4% reported that they received an extra bonus as a result of taking the courses.
- 4% of learners anticipated the programs would help them recover from the professional consequences of the COVID-19 pandemic. 5% of completers reported this as a benefit.

Compensation for Participating in the Courses

- 6.5% of the completers were paid by their employers for all their study time, and another 4% were paid for some of their study time.
- For the small percentage of Specializations completers whose employers paid them for some or all of the time spent on the courses, the average payment received was \$556 and the maximum was \$6,000.
- For the very small percentage of MicroMasters completers whose employers paid them for some or all of the time spent on the courses, the average payment received was \$5,675 and the range was \$500-\$25,000.

Plans for Further Education

- 9% of all completers indicated that completing their program improved their application to another degree program at the same university that was offering the MicroMasters or Specialization program.
- 4% of all completers indicated that completing their program improved their application to a degree program at a different university.
- 7% of the MicroMasters completers indicated that completing the program improved their application to the related full Master's degree program.

Costs and Opportunity Costs for Completers

- Approximately 2/3 of completers were paying the course fees themselves.
- The vast majority of completers gave up unpaid leisure time to complete the coursework, but 18% of MicroMasters completers and 3% of Specializations completers gave up paid work time.
- MicroMasters completers spent an average of 412 hours on the program, above the 100- to 400-hour range recommended by the program providers. With an average income of \$59,000, this time investment represents an opportunity cost of almost \$11,700 in potential earnings.
- Specializations completers spent an average of 42 hours on the program, within the recommended range of 38 to 78 hours. With an average income of \$38,000, this time investment represents an opportunity cost of less than \$800 in potential earnings.
- Although we estimated the Specializations would cost \$325 to complete in the recommended timeframe, completers reported paying median fees of \$79.
- For the 24% of Specializations completers whose employers paid or assisted with the fees, the median employer contribution was \$100.
- We estimated the MicroMasters fees should be in the range of \$900-\$1,300. The median total fees participants reported paying were \$1,200.
- For the 11% of MicroMasters completers whose employers paid or assisted with the fees, the median employer contribution was \$1,200.

Conclusion

Almost all learners who earned MicroMasters and Specializations credentials gained new knowledge, despite already being well-educated. Over a third of learners reported improving their job performance. Financial returns to these programs were less apparent for learners as they represented a substantial investment of time for which most participants were not compensated. More employers should consider supporting employees in participating in these programs as a low-cost alternative to traditional talent development.

1. Introduction

Higher education is often maligned for its inability to innovate. The advent, rapid adoption, and evolution of massive open online courses (MOOCs) have defied this characterization, albeit catalyzed by the establishment of entrepreneurial intermediary organizations such as Udacity, edX, and Coursera. Stanford University introduced what came to be known as the “xMOOC” in 2011 (see [Hollands & Tirthali, 2014](#), p. 34), and the concept spread like wildfire, especially among elite universities. This triggered the proliferation of both nonprofit and for-profit online platforms that offered learners across the world access to courses from many universities and other organizations. But innovation is only desirable if net benefits to society increase. Assessing the net societal value of these MOOC-based alternative credentials would be a complicated endeavor, requiring a consideration of the impact on universities and other organizations creating the content, the impact on learners participating in these credentials, and the benefits to the owners and employees of the newly established intermediaries. This report focuses on benefits to learners.

1.1 Background

By 2014, MOOC providers began packaging individual courses into series with a non-degree or “alternative” credential attached (see [Gordon, 2018](#); [Hollands, 2017](#); [Inside Higher Education, 2018](#); [Pickard, 2018](#)). These packages include [Specializations](#) and [MasterTrack® Certificates](#) from Coursera; [Nanodegrees](#) from Udacity; and [Professional Certificates](#), [XSeries](#), [MicroMasters](#), and [MicroBachelors](#) from edX. For a fee, they provide the learner with verified documentation of completion, sometimes in the form of a digital badge that is easily embedded in the learner’s online profile. A few of these programs provide university credits, and many more can be converted into credits upon acceptance into a formal degree program. Coursera currently offers around 2,000 Specializations developed by institutions across the world, mostly universities and colleges, but also companies and research institutes. As of the end of 2022, 32 universities from 14 countries (U.S., U.K., Canada, India, Hong Kong, Australia, New Zealand, Belgium, the Netherlands, Mexico, Guatemala, Colombia, Argentina, and Spain) are offering a total of 59 MicroMasters via the edX platform.

These alternative credentials are much less costly than traditional degrees. The average cost of a MicroMasters is currently \$1,544 (although this is up 60% from \$972 3 years ago). But they can cost as little as \$196 and as much as \$4,725 for a program offering up to 7 university credits. For example, Boston University’s Digital Transformation Leadership MicroMasters costs \$1,795.50 for five graduate-level courses. MicroMasters programs offer completers a standalone “MicroMasters” credential and also the opportunity to apply academic credit towards a full Master’s degree. Initially, universities offering the MicroMasters did not accept the program as credit towards their own programs but, instead, arranged for other universities to accept them. This situation has changed over the past 3 years such that most MicroMasters programs can now be applied to a full Master’s program, or other graduate program, at the same institution. Indeed, Feldstein ([July 2022](#)) recently suggested that MOOCs are primarily marketing tools designed to entice learners into full degree programs. Most MicroMasters credentials can also be applied to a program at a different university from the one offering the program. For example, approximately 60% of MicroMasters can count as 9-12 credits out of 33 credits towards a Master in Professional Studies from Rochester Institute of Technology (see [Bureau, 2019](#)). At the extreme, MIT has arrangements with 31 other universities around the world to accept its Statistics and Data Science MicroMasters for credit.

Specializations provide the learner with a certificate upon completion, but no option for academic credit towards a further degree. Coursera offers several pricing models for its content (see [Cooke, 2022](#)). Currently, a learner may pay \$49-\$79 per month to pursue a single course or Specialization, and \$59 per

month or \$399 per year to access multiple courses and programs at once. This means that an entire Specialization could be completed for less than \$400 if completed within a year; for \$59 if all courses in the Specialization are concurrently available and the learner can pack all the work into one month; or for no fee if they can squeeze it all into a 7-day free trial. For example, Johns Hopkins University's Data Science Specialization consists of nine courses plus a capstone project, and the suggested time to completion is 11 months. This allows learners to take advantage of any of the pricing models. Both Coursera and edX offer financial aid to some learners which can further reduce the fees.

1.2 What Benefits Do MOOC-based Alternative Credentials Confer?

In 2015, [Zenghao et al. \(2015\)](#) investigated whether standalone MOOCs brought benefits to participants and found that learners reported career and educational benefits from completing individual MOOCs. In 2017, Hollands and Kazi initiated a longitudinal study of participants in MicroMasters and Specializations courses, extending Zenghao's inquiry to series of MOOCs which have been packaged into programs bearing some form of non-degree credential. The research question being addressed in this ongoing study, of which this report is a part, is:

Do MOOC-based alternative credentials bring learners career, financial, educational, or other benefits that outweigh the direct costs and opportunity costs of participation?

The hypothesis on which this study is based is that courses offered as a series with a culminating credential could be even more beneficial than individual MOOCs. From an educational standpoint, the learner pursues a topic in depth and participates in more rigorous assessments. From a career standpoint, the credential may serve as a signal to potential employers that the learner is capable of mastering a substantial body of knowledge and skills related to a particular topic area.

In 2018, [Hollands and Kazi](#) reported findings from 3,086 learners who completed a survey about expected benefits at the beginning of a MicroMasters or Specialization program. The typical learner was White or Asian; reported at least intermediate proficiency in English; and was well-educated, employed, and 30-44 years old. Median annual income was \$46,000 for Specializations participants and \$23,000 for MicroMasters participants. Sixty percent of the learners planned to complete all courses in their program, but only 35% expected to earn the culminating certificate. The most commonly expected benefits were improving performance in a current job (44% of respondents), help starting a business (27%), and learning something new (26%). Two percent of respondents were asked to take the courses by their employers. Nine percent of the MicroMasters participants expected they would apply for the full Master's degree to which they could apply the credits currently being earned. Overall, 12% of the respondents expected to apply for a formal degree after completing the program.

Just over a year later, [Hollands and Kazi \(2019\)](#) reported preliminary findings from 262 learners who completed an end-of-program survey in five Specializations and five MicroMasters. The largest concentrations of completers were in the U.S. and India, with 60% reporting fluency in English. Most completers reported at least an intermediate level of knowledge of the subject matter of their programs, with almost one-third claiming expertise. This contrasts with the beginning-of-program results, where over half the respondents indicated they were beginners in the subject. MicroMasters completers reported spending an average of 10 hours per week over 26 weeks on their programs, while Specializations completers spent an average of 9 hours per week over 7 weeks. Ten percent of completers, across all 10 programs, were asked by their employers to take the courses. Employers paid the fees for 13% of completers and contributed towards the fees of another 2%. Four percent were paid by their employers for all their study time, and another 4% were paid for some of their study time. The most common benefits reported from completing the MicroMasters or Specializations were: learning something new (90%), improving

performance in the completer’s current job (38%), and improving English language skills (22%). Almost half of the completers indicated that they planned to pursue a further degree program. Seven percent of the MicroMasters learners indicated that completing the program had improved their application to the full, related Master’s program.

1.3 Where Does This Report Fit In?

Given the low number of program completers by 2019, we continued to collect beginning-of-program and end-of-program surveys with a view to collecting surveys from a larger number of completers. Three years on, we have collected beginning-of-program survey responses from a cumulative total of almost 26,000 learners and end-of-program survey responses from almost 2,300 learners. We summarize findings from both sets of surveys in this report and also present findings for a small number of participants who completed surveys at both the beginning and end of the programs. The Specialization programs and one of the MicroMasters programs included in this report are the same as the ones in 2018, while two of the original MicroMasters programs are no longer included and one new one was added.

2. Methods and Data

2.1 Methods

Data were collected from open online programs offered by three different universities in the U.S.: two public and one private. Study participants were enrolled in one of two MicroMasters programs or one of six Specializations programs. The programs were on topics related to business, marketing, professional advancement, finance, or data science. Program participants were invited to complete a voluntary online survey when they started the first course in the Specialization or MicroMasters program (beginning-of-program survey) and another survey when they completed the series of courses (end-of-program survey). The surveys gather information about the learner’s demographic background, education, earnings, current career status, future study and career plans, and what they expect to—or did—gain from the programs. The survey also investigates the direct costs and opportunity costs incurred by learners participating in these course series: How much time are they spending on the courses? Are participants sacrificing paid work time to complete coursework? Who is paying for the courses? Are their employers allowing them to study during paid work time? Participants were able to skip any questions they did not wish to answer.

Very few participants who responded to the beginning-of-program survey also completed the end-of-program survey, and many of those who responded to the end-of-program survey had not completed the beginning-of-program survey. This means that there is very little overlap between the beginning-of-program sample and end-of-program sample. Accordingly, our analysis, except for that part focused on the small number of respondents who completed *both* surveys, should not be presumed to represent “pre” and “post” data for the same people. An additional caution is that we do not have data on program participants as a whole (i.e., including those who took the courses in the eight programs but chose not to respond to the survey). Therefore, we cannot assess how well survey respondents represented the learner population as a whole. Finally, our study is not designed to assert causality between participating in these programs and the outcomes reported.

2.2 Data

We collected over 26,000 responses to one or more questions in the beginning-of-program survey between February 2017 and September 2021. We determined that 25,913 entries were non-duplicated (i.e., not submitted by the same participant more than once for the same program; see Appendix A for details). Seventeen percent of the responses were from participants in a Specialization program (n = 4,490), and

83% were in a MicroMasters program (n = 21,423). Respondents were unevenly distributed across the eight programs, with 49% being enrolled in one MicroMasters program and 34% in another MicroMasters program. Between 0.5% and 8% of respondents were enrolled in one of the six Specializations, for a total of 17% in Specializations. This distribution is likely to reflect highly variable enrollment levels across these types of programs.

Only learners who completed all courses in their program (“completers”) were invited to complete the end-of-program survey. We collected 2,288 non-duplicated responses from completers between March 2018 and November 2022. Of these, 88% of the learners completed a Specialization program, and the remaining 12% completed a MicroMasters program, almost completely reversing the relative proportions of MicroMasters vs. Specializations learners represented in the two samples.

A total of 137 participants completed both the beginning-of-program and end-of-program surveys. As we did not ask for the names of respondents in either survey, we found matches between both datasets by examining first email addresses, then IP addresses, then demographic data (e.g., birth year, gender, race) to ensure we were matching the correct observations. We may have missed matches for learners who changed email address and/or IP address between responding to the two surveys.

We report findings for the three samples consecutively: beginning-of-program learners, completers, and the small subset of learners who completed both surveys.

3. Findings

3.1. Analysis of Beginning-of-program Survey Responses

3.1.1 Demographics of Respondents to Beginning-of-program Survey

Table 1 summarizes demographics of the beginning-of-program survey respondents by program type. We subsequently provide additional details.

Table 1. Demographics of Participants Who Started a Specialization or MicroMasters Program

Characteristic	Specializations	MicroMasters
Female	58%	34%
Male	41%	66%
Average age (years)	35	33
Youngest (years)	7	9
Oldest (years)	81	101
Hispanic*	12%	15%
White	49%	35%
Asian	23%	35%
Black/African American	9%	8%
Multiracial	5%	7%
# of countries/regions of residence	150	177
Most common countries of abode	U.S. (41%), India (9%), Canada (3.5%)	U.S. (21%), India (16%), Brazil (4%)

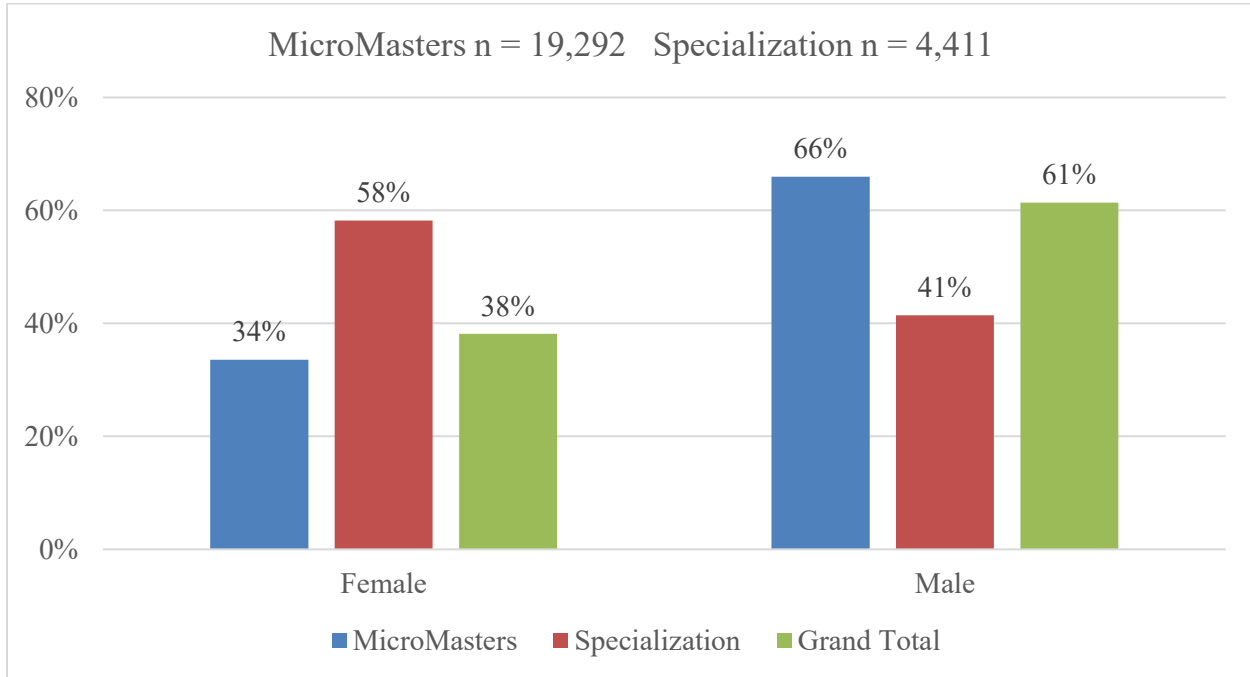
Note. The sample size differs across questions and is shown for each question throughout the report.

*Respondents were asked to report Hispanic/Non-Hispanic ethnicity separate from race.

Gender

Across all eight programs, 38% of the beginning-of-program respondents identified as female, 61% as male, and 0.43% as other. Figure 1 shows the percentage of learners identifying as male or female by type of program.

Figure 1. Beginning-of-program Respondents Identifying as Male or Female by Program Type

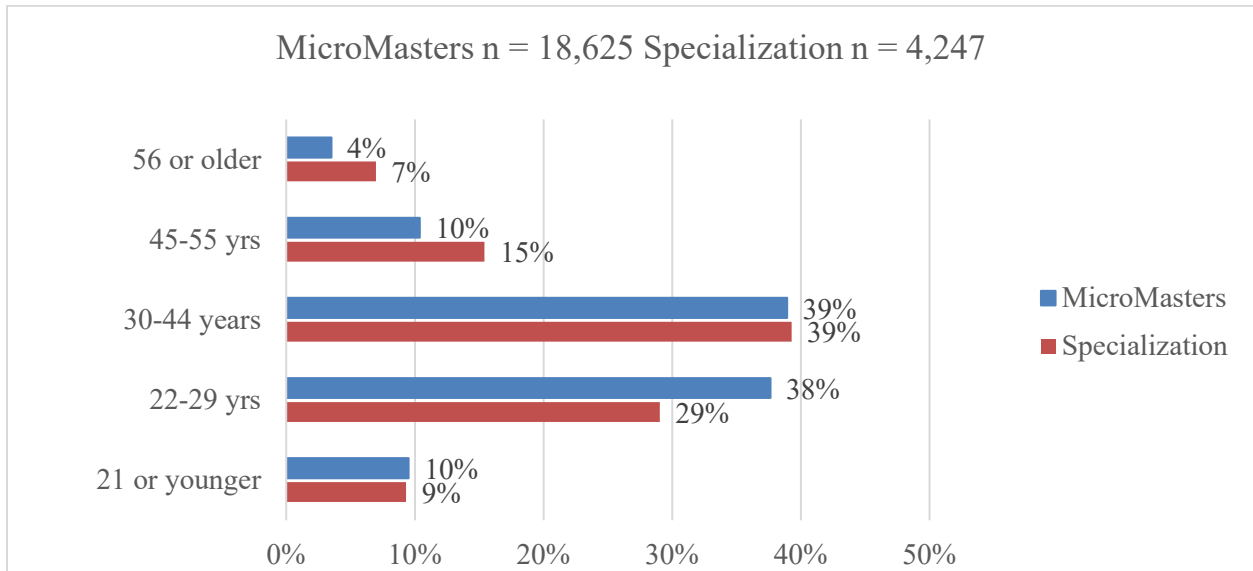


Learners' Age

The median age of all participants at the time of beginning-of-program survey completion was 31 years, the average age was 33 years (standard deviation = 11), and the range was 7 to 101 years.¹ For the MicroMasters programs, the median age of participants was 30 years, the average age was 33 years (standard deviation = 11), and the range was 9 to 101 years. The median age of learners in the Specialization programs was 33 years, the average age was 35 years (standard deviation = 12), and the range was 7 to 81 years. Figure 2 shows the age distribution of learners in the eight programs.

¹ We used the year in which the pre-survey response was collected to calculate age from the respondent's year of birth.

Figure 2. Age Distribution of Beginning-of-program Respondents Across All Eight Programs



Learners' Race

As shown in Figure 3, 37% of learners who embarked on one of the 8 programs were White, 33% were Asian, 8% were Black or African American, and 6% were multiracial (n = 23,416). Figure 4 shows the race distribution of learners by program type.

Figure 3. Learners' Race (Beginning-of-program)

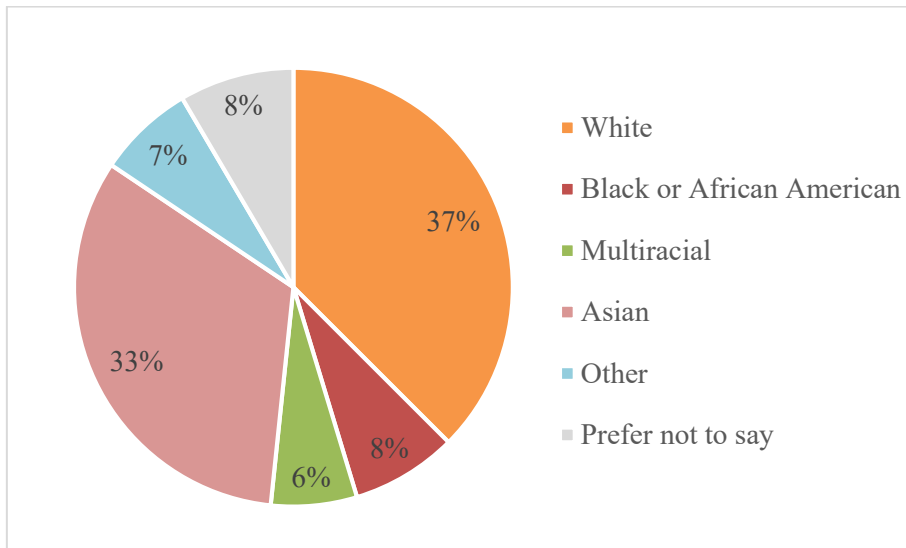
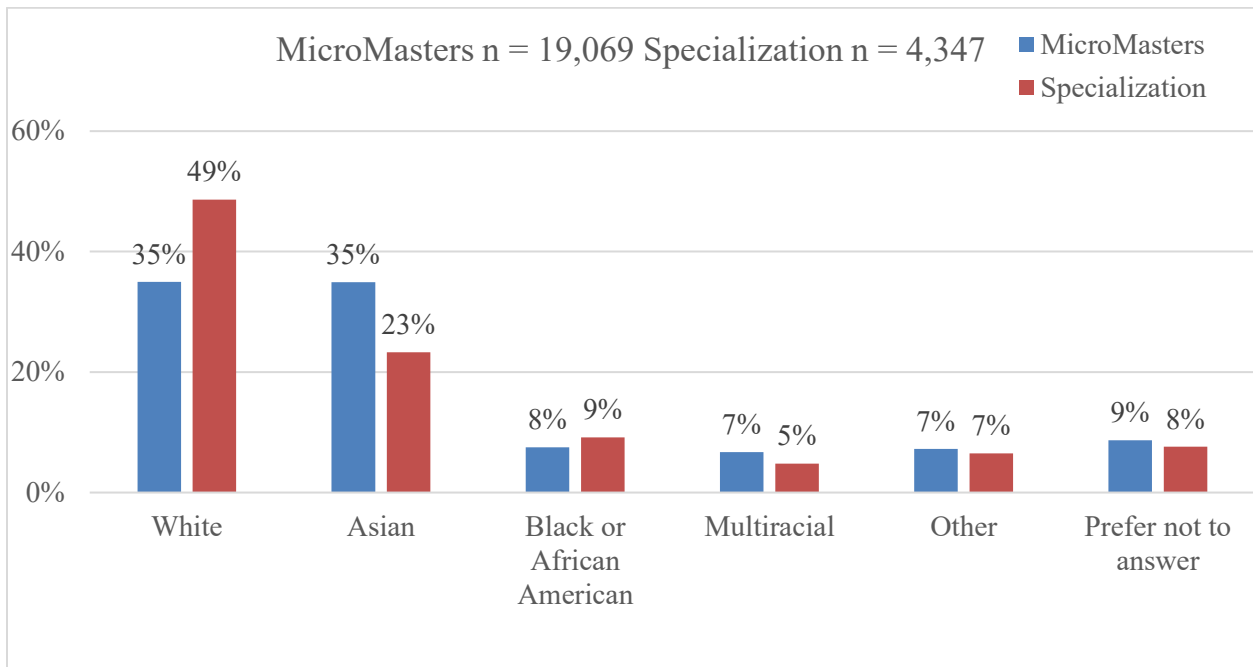


Figure 4. Race Distribution of Learners by Program Type (Beginning-of-program)



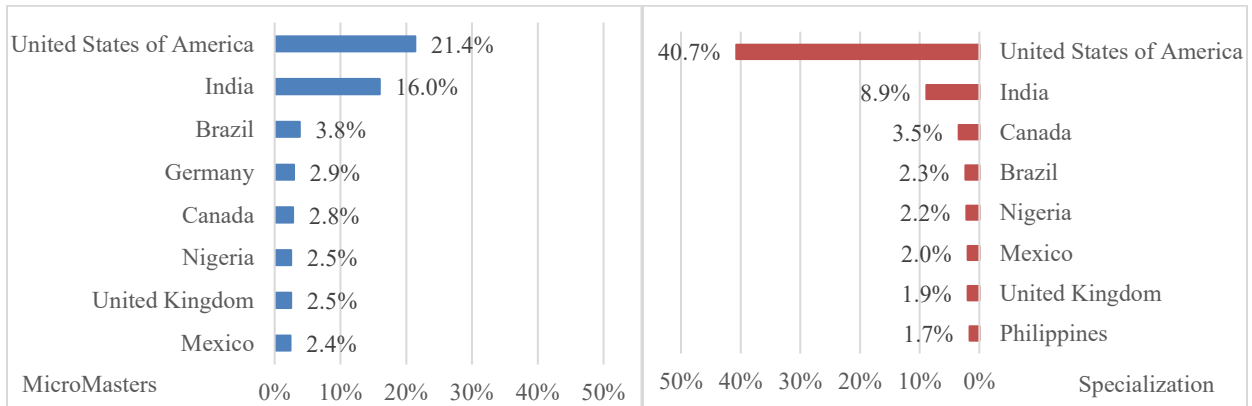
Learners' Ethnicity

Overall, 14% of the beginning-of-program survey respondents (n = 23,258) identified themselves as Hispanic and the remaining identified as non-Hispanic. By program type, 15% of the MicroMasters learners and 12% of the Specialization learners identified as Hispanic. The survey adopted the categories of race and ethnicity used by the [U.S. Census Bureau](#). This categorization is less applicable to non-U.S. learners and may have caused some inaccuracy in their responses. For example, some participants who chose "Other" for their race specified that they considered themselves Latinx/Hispanic, although the survey offered this as an ethnicity option rather than a race option.

Country of Residence

Participants (n = 23,524) in the eight programs lived in over 189 different countries and regions, but the largest concentration was in the U.S. (25%), followed by India (15%). Brazil, Canada, Germany, Nigeria, the United Kingdom, and Mexico were home to 16% of the learners in total (around 2%-4% from each country). Differences in demographics between MicroMasters learners (n = 19,205) and Specialization learners (n = 4,319) are shown in Figure 5 below. Figure 6 and Figure 7 indicate where learners were concentrated around the globe.

Figure 5. Top Eight Countries of Residence (Beginning-of-program)



The percentage of learners from the U.S. was substantially higher in the Specialization programs, compared with the MicroMasters programs (41% vs. 21%).

Figure 6. Concentration of MicroMasters Learners Around the Globe (Beginning-of-program)

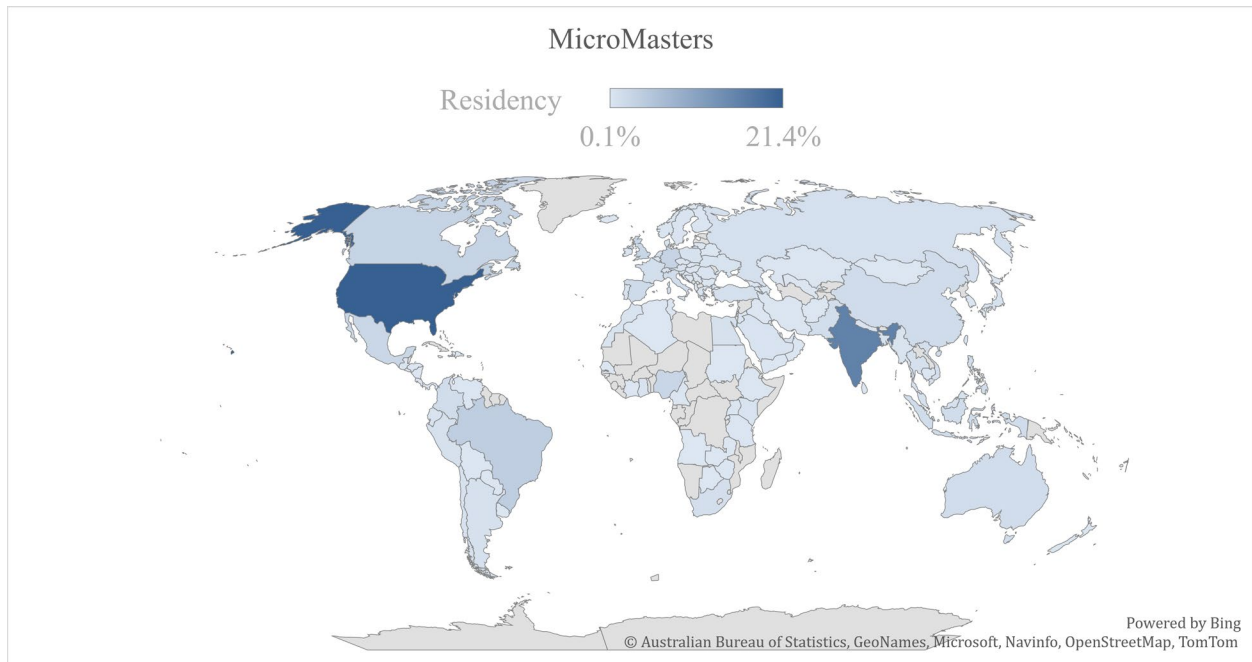
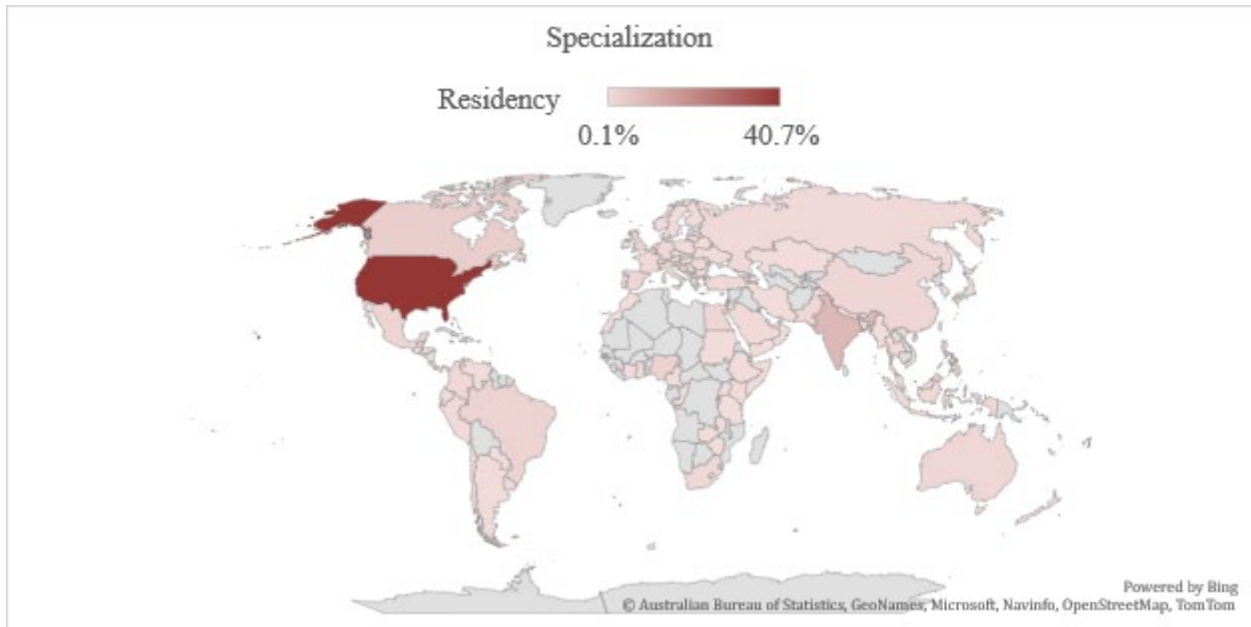


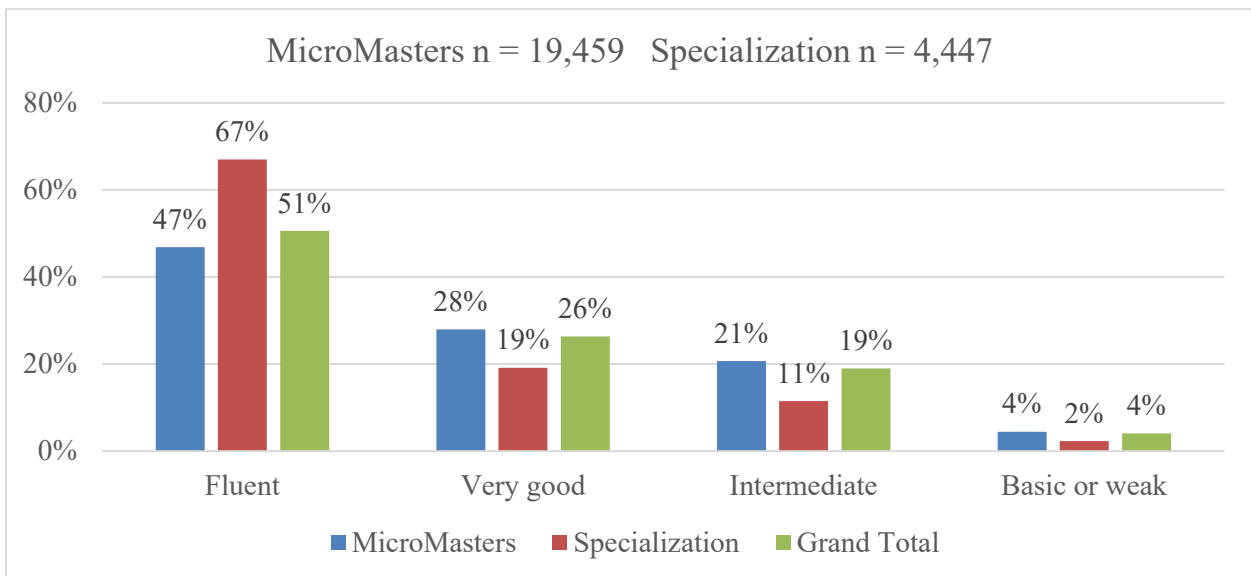
Figure 7. Concentration of Specialization Learners Around the Globe (Beginning-of-program)



English Proficiency

The majority of beginning-of-program survey respondents were fluent in English or indicated that their English proficiency was very good. Less than 5% reported basic or weak English skills (see Figure 8 for a breakdown by program type).

Figure 8. English Proficiency by Program Type (Beginning-of-program)



3.1.2 Education

Highest Level of Education Completed

Figure 9 shows the distribution of credentials by program type. Overall, 80% of beginning-of-program survey respondents had completed at least a Bachelor’s degree and 38% had earned a higher degree (Master’s, Doctorate, or professional degree). Only 3% of participants indicated that their highest level of education was an Associate’s degree. Seventeen percent of participants had no degree at all, although 7% had completed some university or college courses.

Fifty-eight percent of respondents with no university degree as yet (n = 4,066) reported themselves as current students, while 17% indicated that they were taking the programs to improve their applications to a degree program. Presumably, the remaining respondents (approximately 1,000 individuals) were not currently on track to pursue a degree.

Twenty percent of beginning-of-program survey respondents enrolled in Specializations and 25% of those enrolled in MicroMasters claimed to be current full-time or part-time college students (see Figure 10).

Figure 9. Highest Level of Education Completed (Beginning-of-program)

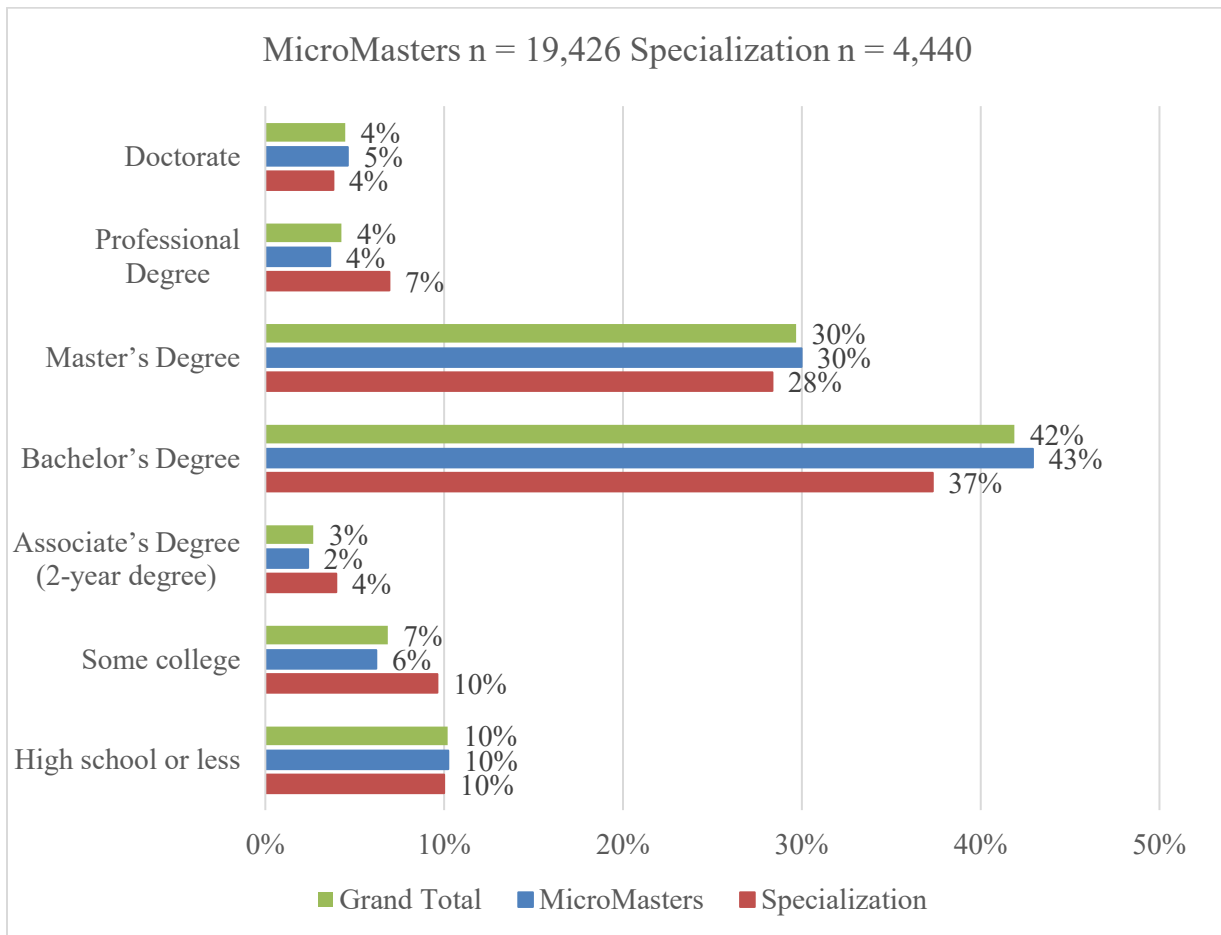
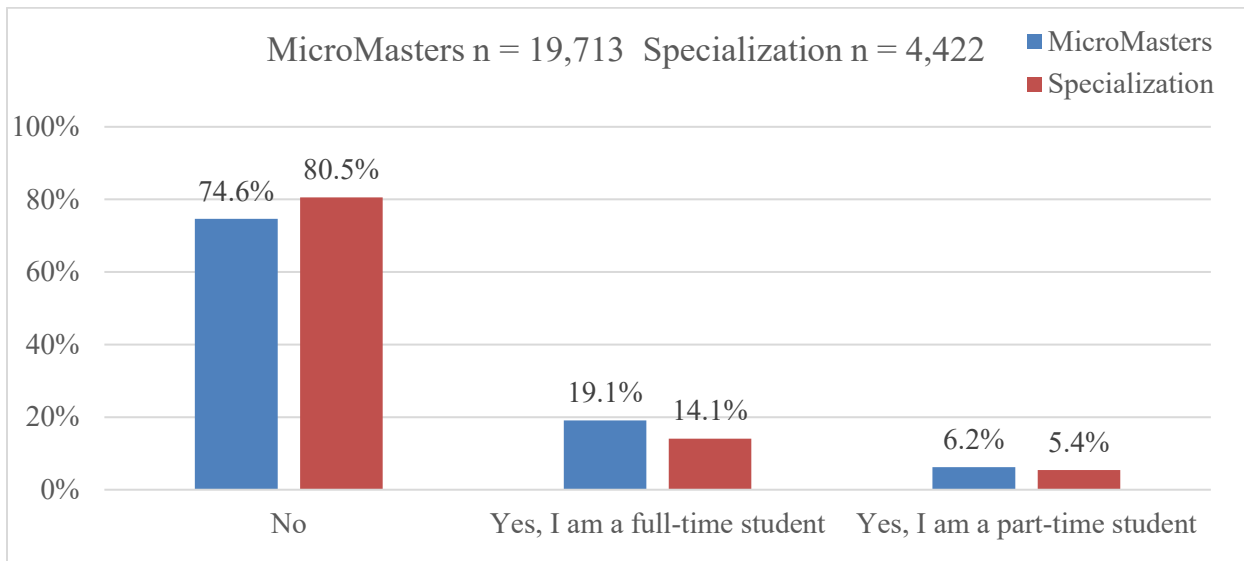


Figure 10. Percentage of Learners Participating in a College Degree Program (Beginning-of-program)



Subject Matter Knowledge

Four percent (n = 19,439) of MicroMasters beginning-of-program survey respondents claimed to have advanced or expert knowledge in the program topic. Thirty-three percent claimed intermediate-level knowledge, while 63% indicated they were beginners in the subject. The Specialization program survey did not include this question.

Number of Online Courses Completed

Approximately 43% of the MicroMasters beginning-of-program survey respondents (n = 19,430) had not completed any prior online courses, 34% had completed one or two, 16% had completed 3-7, and 7% had completed 8 or more. The Specialization program survey did not include this question.

Source of Motivation to Enroll in Course Series

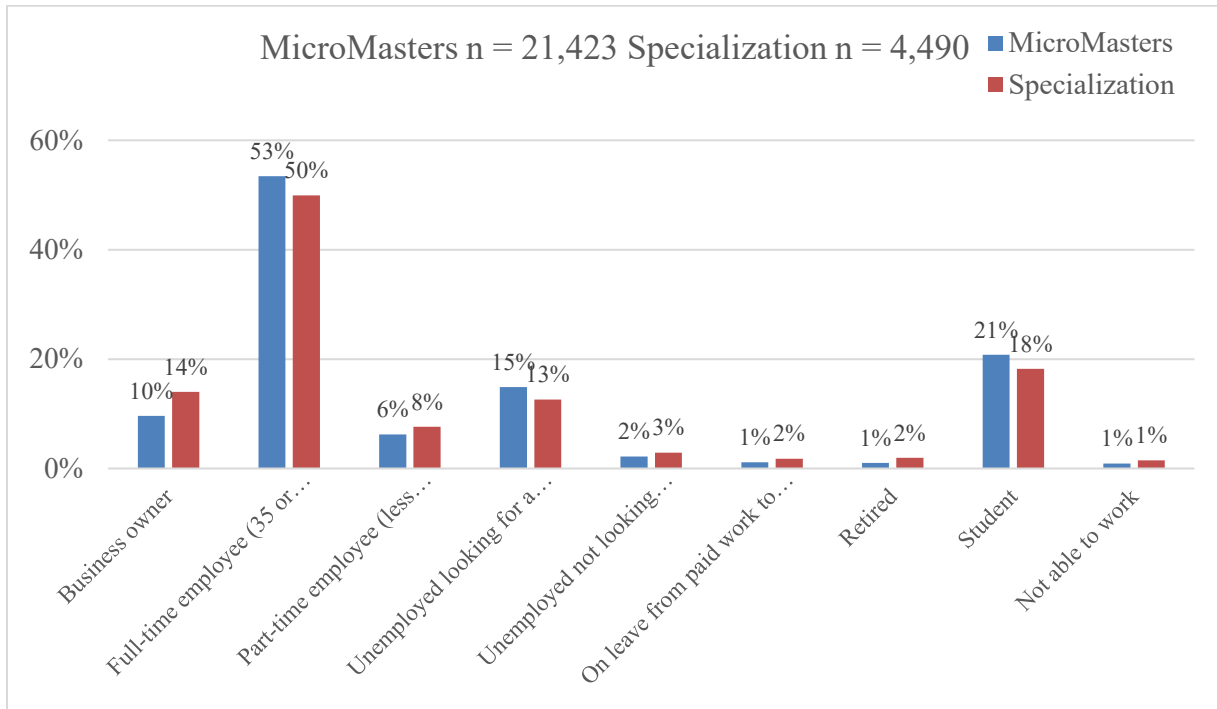
Ninety-seven percent (n = 3,750) of the Specialization program participants chose to enroll in the programs themselves, while 98% (n = 17,680) of the MicroMasters program learners did so. The remainder in each case were asked by their employers to take the programs.

3.1.3 Employment and Income

Employment Status

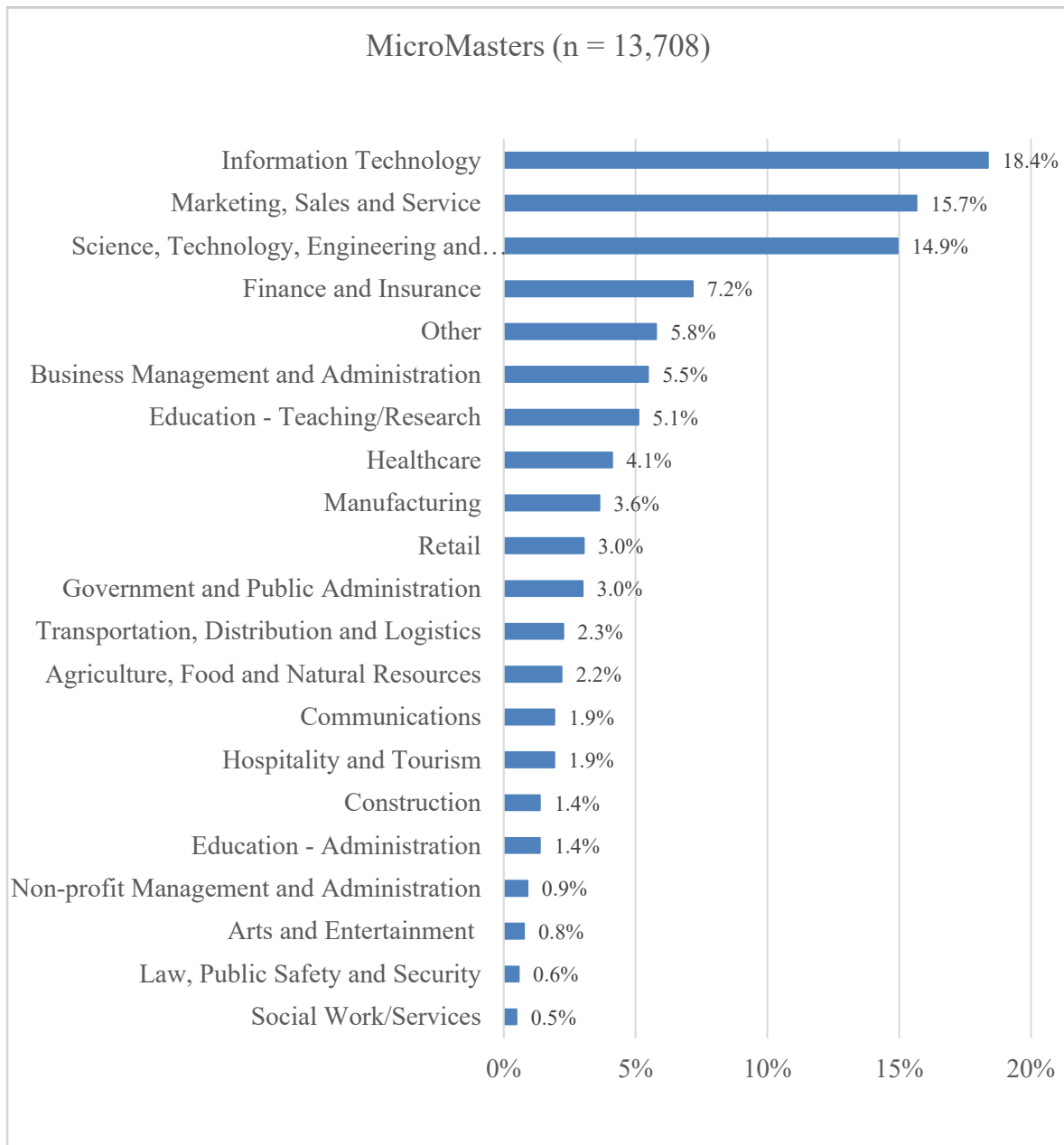
Sixty-nine percent of beginning-of-program survey respondents in MicroMasters and 72% of those in Specializations were employed full-time or part-time or were business owners. Figure 11 shows employment status by program type.

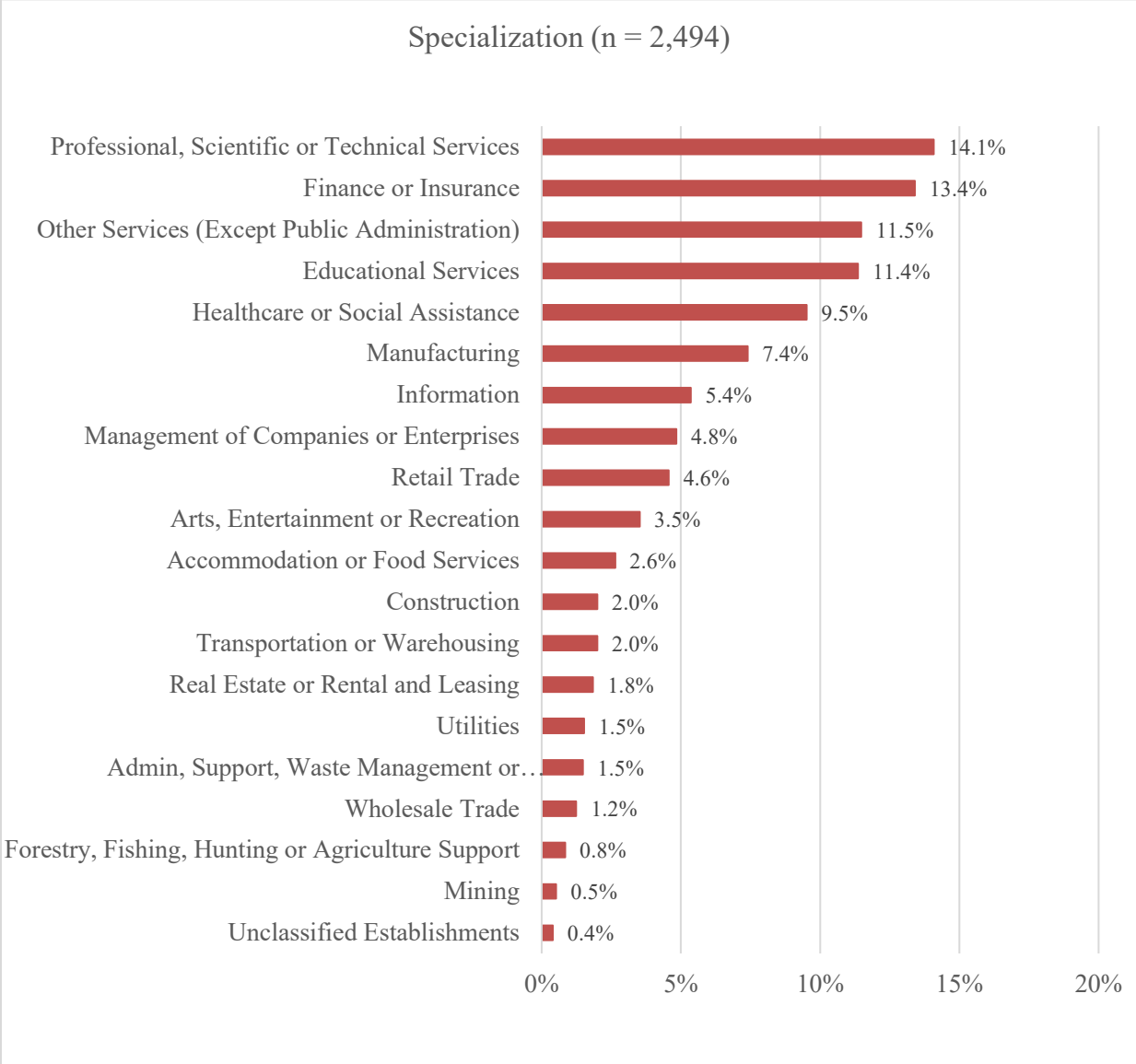
Figure 11. Employment Status of Learners by Program Type (Beginning-of-program)



The most common job area among MicroMasters beginning-of-program survey respondents was information technology (18%), followed by marketing, sales, and service (16%) and STEM jobs (15%). For beginning-of-program survey respondents enrolled in the Specialization programs, 14% worked in professional, scientific, or technical services; 13% worked in finance or insurance; and 21% reported that their occupations were related to education, healthcare, or social assistance. Figure 12 illustrates the job areas in which learners were currently employed.

Figure 12. Job Areas in Which Learners Were Currently Employed (Beginning-of-program)



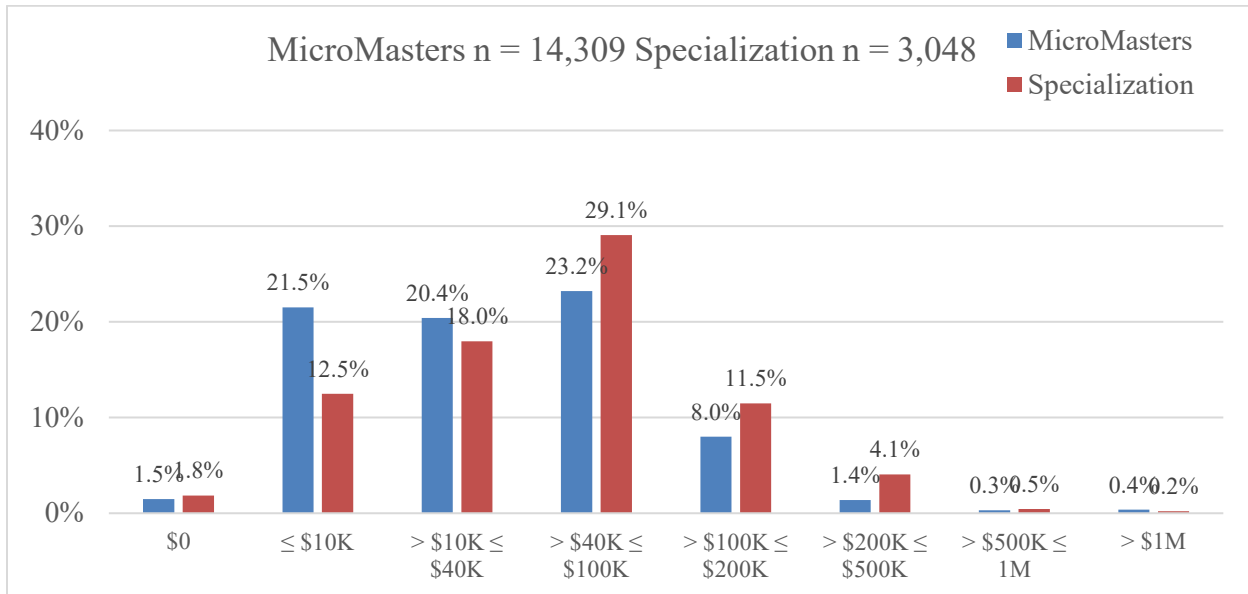


Total Income

Beginning-of-program survey respondents who were employed full-time or part-time or running their own business were asked to report their income. Figure 13 shows the distribution of income across learners by program type. For all program participants worldwide, median income (total compensation including salary and any bonus or commissions) was \$36,000. The modal income was \$50,000. Median income of Specialization program participants was \$50,000. For learners enrolled in the MicroMasters programs, median income was lower, at \$31,000. This difference is not surprising, given a higher percentage of MicroMasters learners who reported currently being students or non-U.S. residents.

For the U.S. participants in both types of programs, median annual income was \$75,000, which is higher than median annual income for the general population in the U.S. (reported as \$70,784 in 2021 by [Semega & Kollar, 2022](#)). The difference in median income between the U.S.-based MicroMasters and Specialization learners was negligible: \$75,000 vs. \$74,750.

Figure 13. Distribution of Income Among Learners by Program Type (Beginning-of-program)



Note: 23.3% of MicroMasters participants and 22.4% of Specialization participants who were employed full-time or part-time or who were business owners did not report their income or entered indecipherable data (e.g., 24,00).

Current Plans for Completing Additional Courses and Applying to a Formal Degree Program

A total number of 24,677 participants indicated whether they planned to take additional courses in the Specialization or MicroMasters programs beyond their current course, what their plans were for earning the culminating credential (a certificate for the Specialization programs or a MicroMasters credential), and whether they planned to apply for a further degree program. A total of 20,672 learners in MicroMasters programs and 4,005 learners in Specialization programs answered the question. Participants could select as many options as relevant to their situation. Across all eight programs:

- 44% planned to take *some* additional courses in the program series but did not plan to earn the credential. This percentage varied between 24% and 56% from program to program.
- 29% planned to take *all* of the courses in their program but did not plan to earn the credential. This percentage ranged from 13% to 31% across programs.
- 21% planned to earn the credential but did not plan to apply to a further degree program afterwards. This percentage ranged from 18% to 43% across programs.
- 7.3% of the MicroMasters participants planned to earn the credential and then apply to the related full Master’s degree program (which was offered by one or more *different* universities from the university offering the MicroMasters), applying the credits earned.
- 6% planned to earn the credential and then apply to another degree program at the *same* university that was offering the MicroMasters or Specialization program.
- 5% planned to earn the credential and then apply to a degree program at a *different* university.

Table 2 below shows, for each of the eight programs, what percentage of participants planned to apply to degree programs at the same university offering the MicroMasters or Specialization or at a different university. Overall, 4%-10% of the learners in the MicroMasters programs and 3%-10% of learners in the Specialization programs planned to pursue more formal education.

MicroMasters Participants

Among participants in the two MicroMasters programs:

- 7%-10% planned to apply to the related full Master’s program, which was being offered by different universities.
 - For one of the MicroMasters programs, two universities were accepting the credits towards a full Master’s degree, one in the U.S. and one abroad.
 - 7.8% of the respondents intended to apply to the university in the U.S.
 - 3.4% indicated that they planned to apply to the non-U.S. university.
 The options were not mutually exclusive, and 1.9% of the learners in this program intended to apply to both.
- 5%-6% planned to apply to another degree program at the same university offering the MicroMasters.
- 4%-5% planned to apply to a degree program at another university.
- 2.1% of the MicroMasters participants selected two of the three options (i.e., applying to the related Master’s, applying to another program at same university, or applying to a degree program at another university).
- 0.4% of the MicroMasters participants selected all three options.

Specialization Participants

As Specializations do not constitute part of a Master’s degree, respondents could only indicate whether they were planning to apply to another degree program at the same university offering the Specialization, to a degree program at another university, or to both.

- 3%-10% planned to apply to another degree program at the same university offering the Specialization.
- 4%-8% planned to apply to a degree program at another university.
- 1.6% selected both options.

Table 2. Percentages of Participants in Each Program Planning to Apply for a Further Degree Program After Earning the MicroMasters or Specialization Certificate (Beginning-of-program)

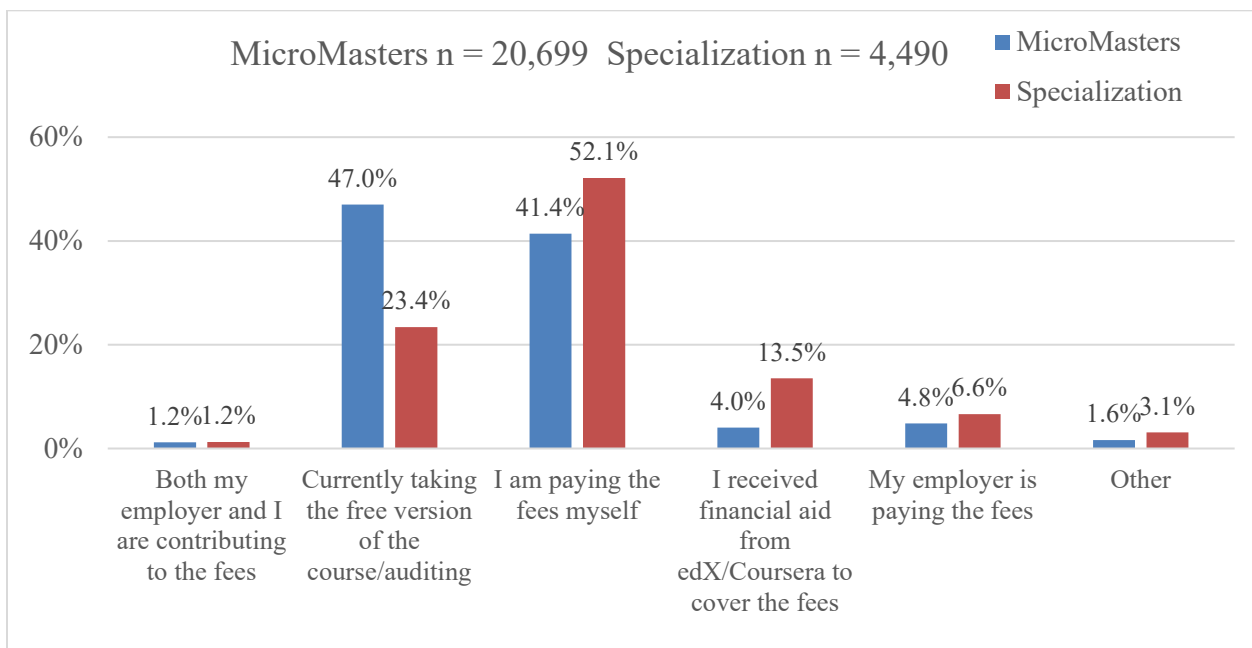
Program Type	Related Full Master’s Degree Program Offered by a Different University	Another Degree Program at the Same University Offering the MM/Spec Program	Degree Program at Another University
MicroMasters 1	9.6%	5.8%	4.2%
MicroMasters 2	6.8%	5.4%	4.7%
Specialization 1	N/A	3.2%	3.7%
Specialization 2	N/A	9.9%	8.0%
Specialization 3	N/A	9.5%	6.9%
Specialization 4	N/A	8.1%	8.4%
Specialization 5	N/A	9.3%	7.9%
Specialization 6	N/A	6.2%	6.6%

3.1.4 Opportunity Costs

Who Pays for the Course Fees

As shown in Figure 14, most learners were either paying course fees themselves or auditing the course at the beginning of the program. Almost 7% of Specialization learners and 5% of MicroMasters learners reported that their employer was paying the fees. Another 1% in each program type indicated their employer was contributing to the fees. Respondents who named the employer paying or contributing to the fees listed a wide range of organizations with academic institutions, financial institutions, consulting firms, and technology-related entities being the most common. The most frequently named organization appeared 17 times among 1,102 responses.

Figure 14. Who Is Paying for Course Fees by Program Type (Beginning-of-program)

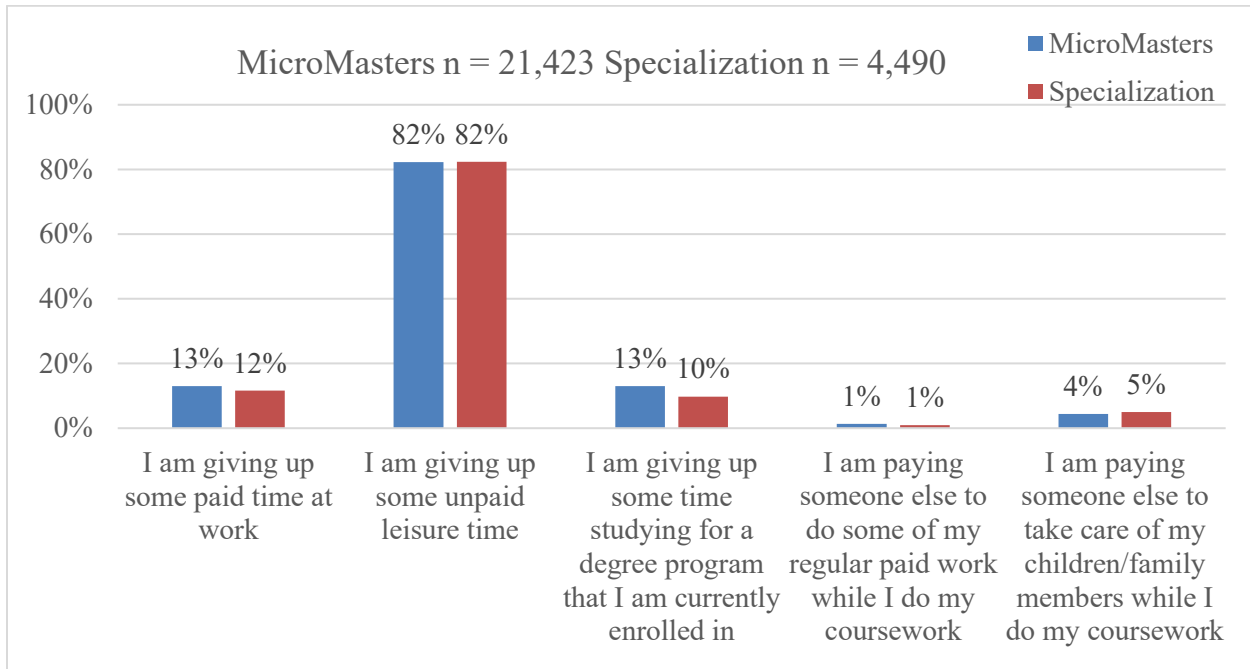


Note: “Other” includes a family member, the person’s university or school, indecipherable entries, and participants who chose “Other” but did not give any explanation.

What Learners Are Giving up to Complete the Courses

Across all eight programs, 13% of the learners at the beginning of the program were giving up some paid time at work to complete the courses, 82% were giving up some unpaid leisure time, 12% were giving up some time studying for a degree program in which they were currently involved, 1% were paying someone else to do some of their regular paid work while they did their coursework, and 4% were paying someone else to take care of their children/family members while they did their coursework. Figure 15 shows the breakdown by program type.

Figure 15. What Learners Were Giving Up in Order to Complete the Courses

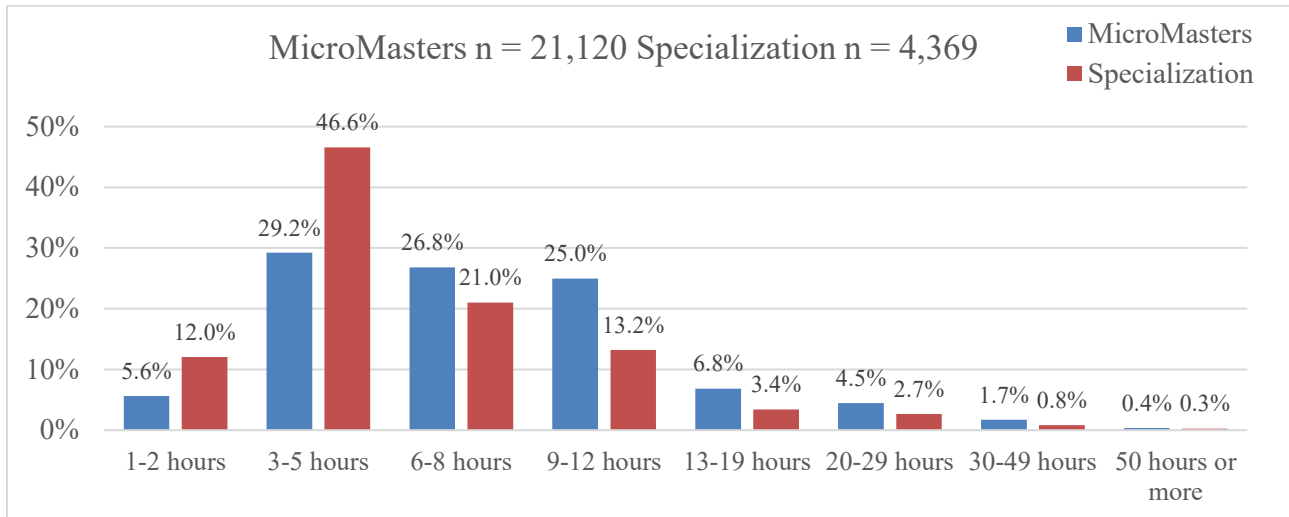


Less than 3% of MicroMasters participants (n = 20,995) indicated that their employers covered all of the time they spent on the courses. Likewise, less than 3% said their employers paid for *some* but not all of the time they spent on the courses. The remaining 95% were not compensated for any of their time invested in the courses. This question was not included in the beginning-of-program Specialization survey. MicroMasters respondents who reported that their employers were paying for some of the time they invested in the courses indicated that, on average, employers were paying for approximately one third of their time.

Amount of Time per Week Learners Planned to Spend on Their Program

The median time that learners planned to spend on the program each week was 7 hours. Participants reported that they planned to spend as little as 1 hour per week and as many as 100 hours per week on the program. However, most learners planned to spend 10 hours per week on the program. Figure 16 provides a frequency distribution by program type of the amount of time participants planned to spend on their program per week.

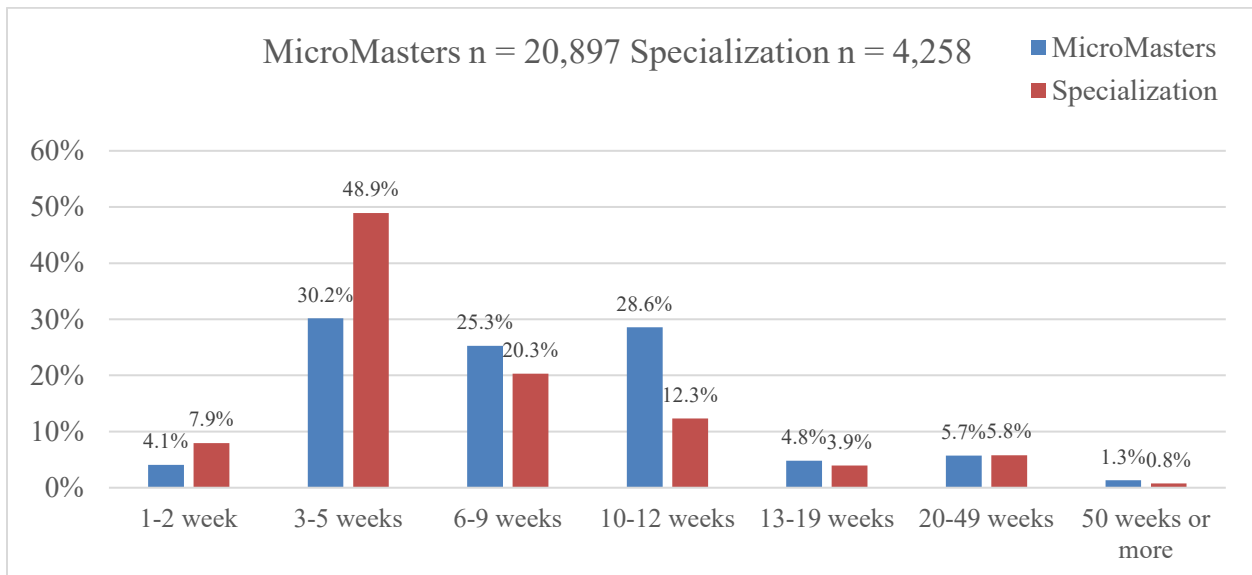
Figure 16. Frequency Distribution of Hours Per Week Learners Planned to Spend on Their Program



Number of Weeks Learners Planned to Spend on Their Program

The median number of weeks learners planned to spend on the program was 8, with a range from 1 to 100 weeks; the mode was 4 weeks. Figure 17 provides a frequency distribution by program type of the number of weeks learners planned to spend on their program.

Figure 17. Frequency Distribution of the Number of Weeks Learners Planned to Spend on Their Program

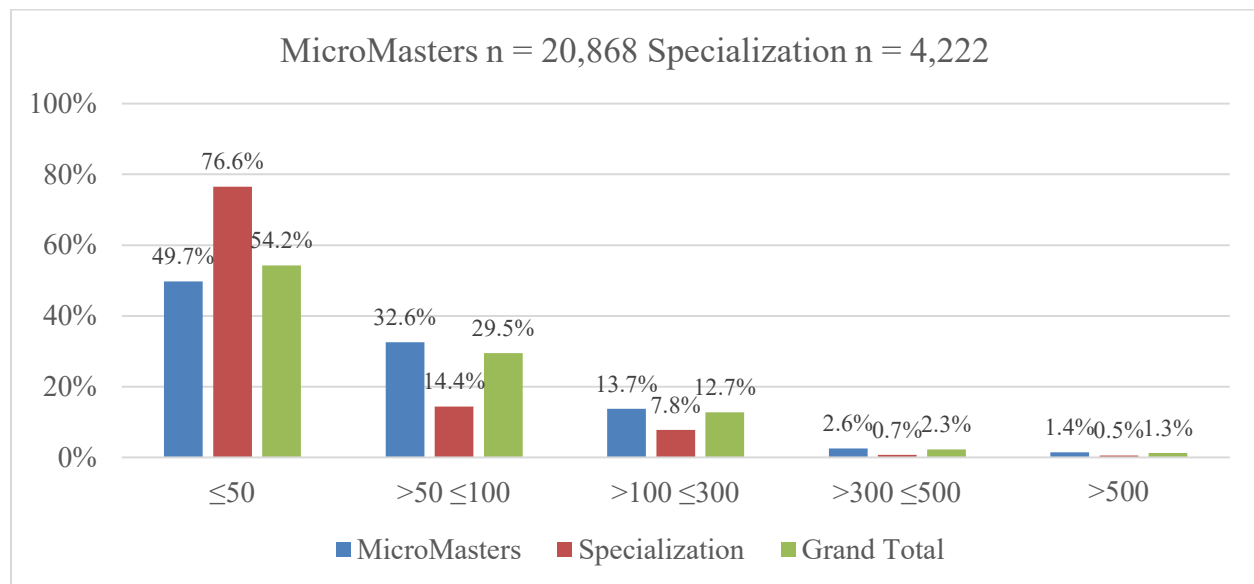


Total Number of Hours Expected to Be Spent on Coursework

We multiplied the expected number of weeks by the expected number of hours to calculate the total number of hours each respondent expected to spend on coursework. As shown in Figure 18, approximately half of the MicroMasters learners who answered both questions expected to spend no more than 50 hours on the program. This was despite the fact that the MicroMasters program providers recommended spending at least twice as many hours: 6-10 hours per week over 16-43 weeks, totaling approximately 100-400 hours.

The Specialization providers recommended 2-3 hours per week over 17-30 weeks to complete the entire program, or a total of 38-78 hours. Consequently, while as many as 77% of Specialization program participants indicated they planned to spend 50 hours or less on the program, these plans were better aligned with provider recommendations.

Figure 18. Total Number of Hours Expected to Be Spent on Coursework



3.1.5 Expected Benefits of Taking the Series of Courses

Table 3 below shows the percentage of learners who selected each of a list of possible reasons for taking courses in the Specialization or MicroMasters programs. Overall, the most popular reason to take the courses was to improve performance in the learner’s current job, followed by improving an application to a different job.

Table 3. Reasons Learners Indicated for Enrolling in the Program (Beginning-of-program)

Expected Benefit	MicroMasters (n = 19,277)	Specializations (n = 4,490)	Grand Total (n = 23,767)
To improve my performance in my current job	41.5%	39.2%	41.1%
To help me apply for a different job from the one I am currently doing	29.8%	20.7%	28.0%
To learn something new	27.7%	24.3%	27.0%
To network with other professionals	26.2%	19.3%	24.9%
To help me start my own business	21.3%	26.0%	22.2%
To improve my English language skills relevant to the program studied	18.1%	18.5%	18.2%
To supplement what I am learning in a formal degree program	17.9%	13.1%	17.0%
To improve my application for a degree program	15.6%	11.9%	14.9%
To improve my application for my first job	13.9%	8.0%	12.8%
To get a job promotion in my current organization	12.4%	10.0%	12.0%
To get a raise in pay as a result of taking the courses	10.7%	8.1%	10.2%
To help me recover from the professional consequences of the COVID-19 pandemic*	4.2%	5.5%	4.4%

Note. Only participants who chose at least one of the answers to this question were included in the results reported in this table.

*The COVID-19 question was added to the surveys in 2020; the sample size for this item was 3,778 (with 3,290 participants from the MicroMasters program and 488 responses from the Specialization program).

3.2 Analysis of Completers

3.2.1 General Description

A total of 2,288 responses to the end-of-program survey were included in our analysis: 88% of respondents completed a Specialization program and the remaining 12% had completed a MicroMasters program. Fifty-six percent of the completers were accounted for by just one of the eight Specializations, while a second Specialization accounted for 27% of the completers and one of the MicroMasters programs accounted for 10% of the completers. This suggests highly variable completion rates across programs. Completion rates may be dependent on topic as well as time commitment required.

Percentage results reported for each question are based on the number of completers who answered the particular question.

3.2.2 Demographics of Completers

Table 4 summarizes demographics of completers by program type. We subsequently provide additional details.

Table 4. Demographics of Specialization and MicroMasters Program Completers

Characteristic	Specializations	MicroMasters
Female	50%	19%
Male	49%	80%
Average age (years)	34	36
Youngest (years)	13	19
Oldest (years)	100	79
Ethnicity*: Hispanic	13%	15%
Race: White	36%	50%
Race: Asian	37%	24%
Race: Black/African American	7%	3%
Race: Multiracial	5%	6%
# of countries and/or regions in which participants lived	119	58
Most common countries of abode	U.S. (23%); India (11%); The Philippines, Thailand (5%)	U.S. (32%); Canada India, Germany (5%)

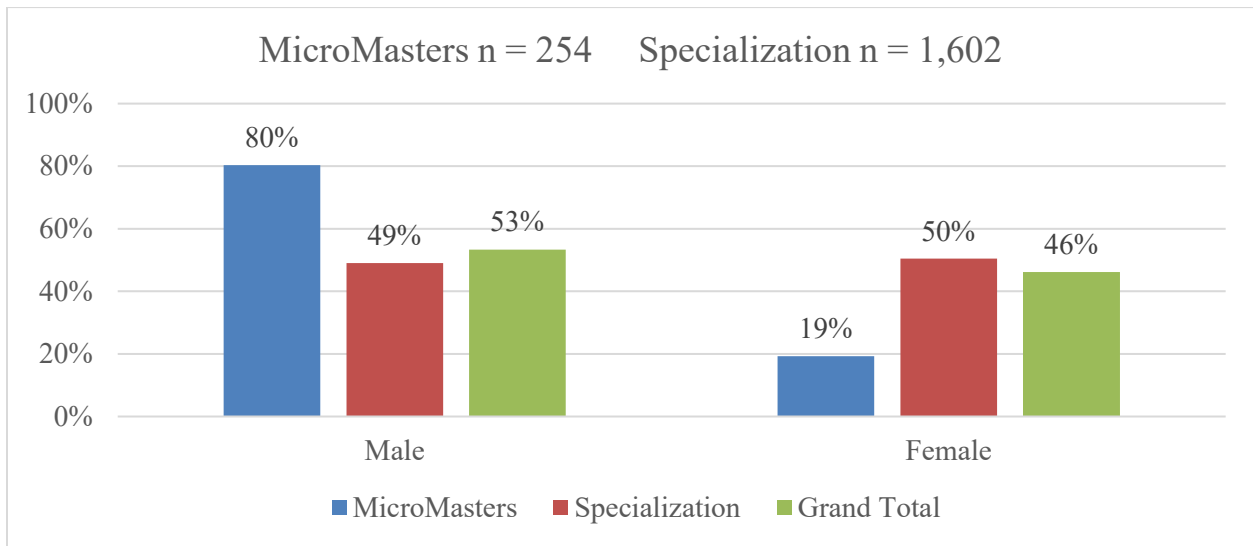
Note. The sample size differs across questions and is shown for each question in the main body of the report.

*Respondents were asked to report Hispanic/Non-Hispanic ethnicity separate from race.

Gender

Among completers who indicated their gender (n = 1,882), 46% identified as female, 53% as male, and 0.53% as other. Figure 19 shows the percentage of learners identifying as male or female by type of program. While approximately half of Specializations completers were male and half female, a large majority of the MicroMasters completers were male.

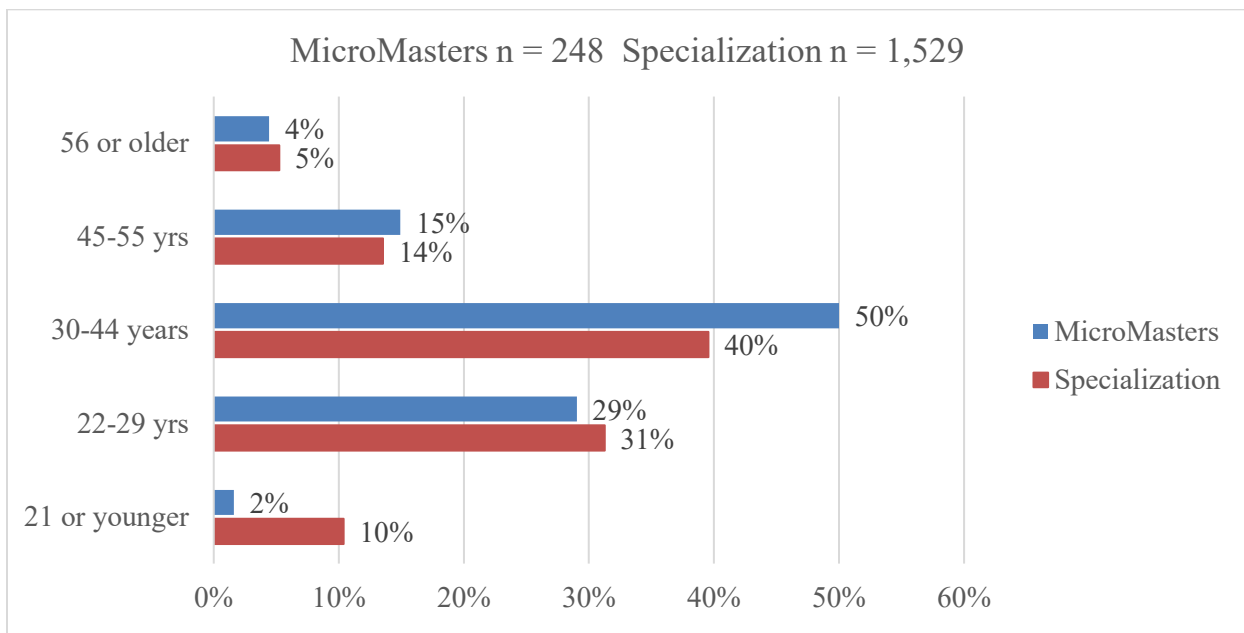
Figure 19. Learners Identifying as Male or Female by Program Type (End-of-program)



Age of Learners at the Time the End-of-program Survey Was Completed

The median age of all respondents at the time they completed the end-of-program survey was 32 years, the average age was 34 years (standard deviation = 11), and the range was 13 to 100 years. For the MicroMasters completers, the median age was 33 years, the average age was 36 years (standard deviation = 10), and the range was 19 to 79 years. The median age of learners in the Specialization programs was 27 years, the average age was 34 years (standard deviation = 12), and the range was 13 to 100 years. Figure 20 shows the age distribution of completers across the eight programs.

Figure 20. Age Distribution of Completers



Note: We used the year in which the end-of-program responses were collected to calculate age from respondent's year of birth.

Completers' Race

Figure 21 demonstrates completers' racial backgrounds across all eight programs (n = 1,860). Overall, 38% of completers were White, 36% were Asian, 6% were Black or African American, and 5% were multiracial. Seven percent of completers responded "Prefer not to answer." Figure 22 shows the race distribution of completers by program type.

Figure 21. Completers' Race

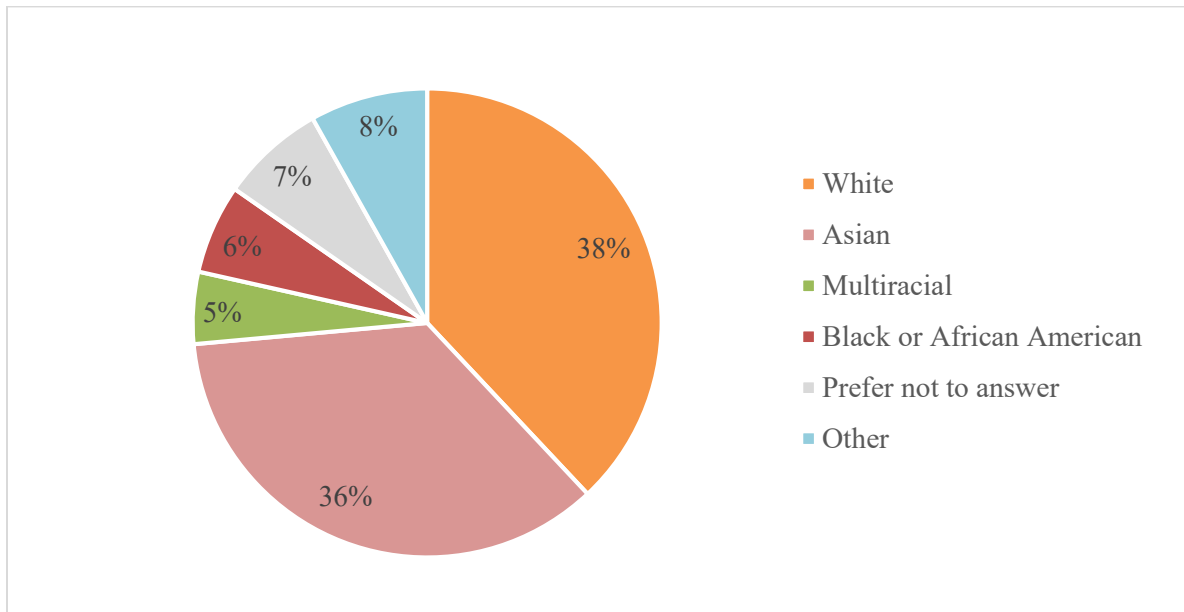
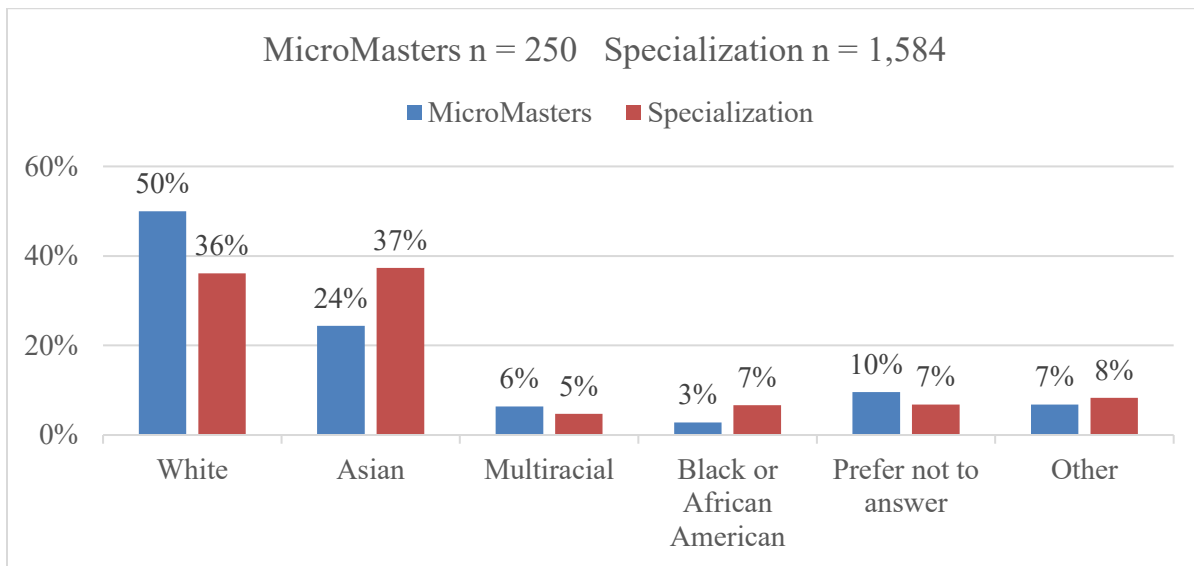


Figure 22. Race Distribution of Completers by Program Type



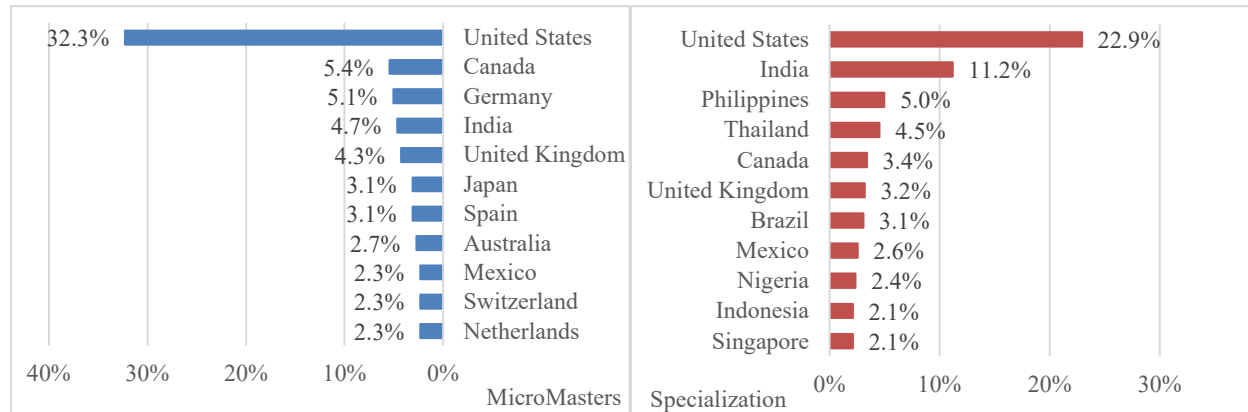
Completers' Ethnicity

Overall, 14% of the respondents (n = 1,844) identified themselves as Hispanic and the remaining identified as non-Hispanic. The percentages of learners who identified as Hispanic varied little between the two types of programs (15% in the MicroMasters programs vs. 13% in the Specialization programs).

Country of Residence

Across the eight programs, completers lived in 122 different countries and regions, but the largest concentration was in the U.S. (24%), followed by India (10%) and the Philippines (4%). Thailand, Canada, the United Kingdom, and Brazil each accounted for 3%-4% of the completers. Country of residence by program type is shown in Figure 23 below: 257 MicroMasters completers and 1,565 Specialization completers indicated the country in which they lived.

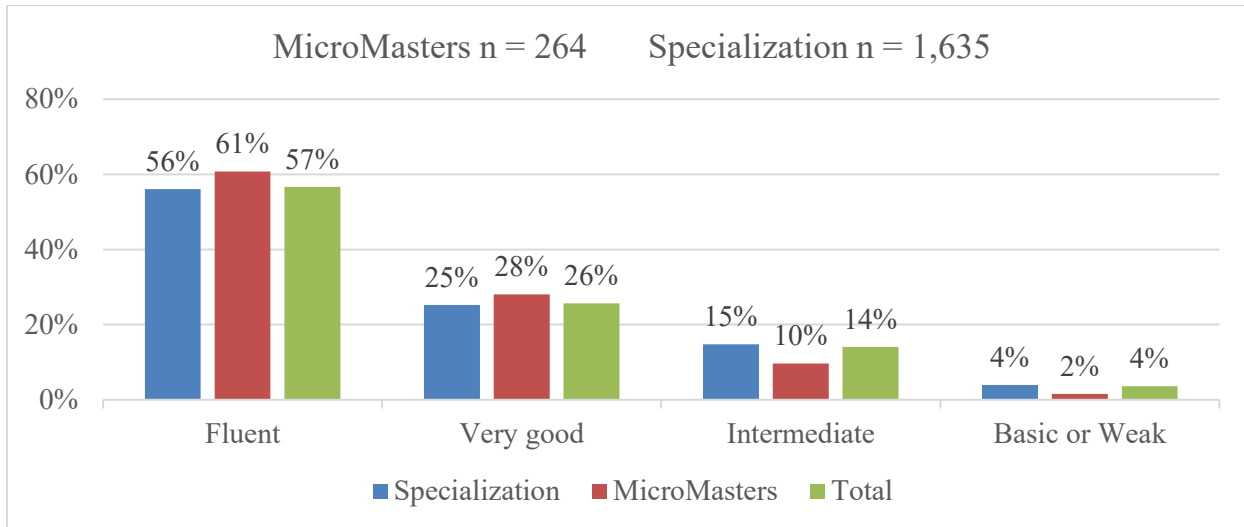
Figure 23. Top Countries of Residence (End-of-program)



English Proficiency

Most completers (83%) were either fluent or reported very good English proficiency. Only 4% reported basic or weak English skills (see Figure 24 for a breakdown by program type).

Figure 24. English Proficiency by Program Type (End-of-program)



3.2.3 Education

Highest Level of Education Completed

Figure 25 shows the distribution of highest level of education completed by program type. Overall, 79% of completers had earned at least a Bachelor’s degree and 39% had earned a higher degree. Less than 3% of the completers indicated that their highest degree was an Associate’s degree. Nineteen percent of participants did not have a postsecondary degree, although 8% had completed some university or college courses.

MicroMasters completers were more likely to have earned a graduate or professional degree than Specialization completers (51% vs. 37%).

Most completers were not enrolled in formal degree programs: Only 23% percent of learners in Specializations and 18% of learners in MicroMasters claimed to be current full-time or part-time college students (see Figure 26).

Figure 25. Highest Level of Education Completed (End-of-program)

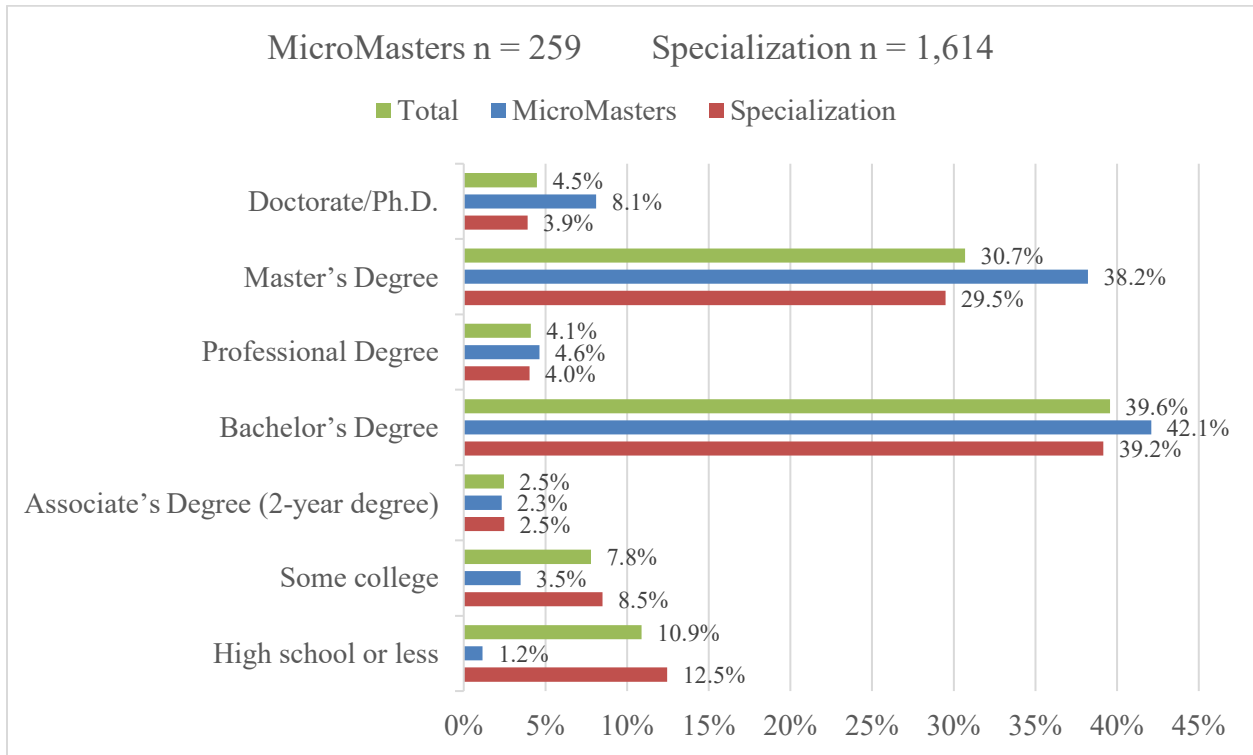
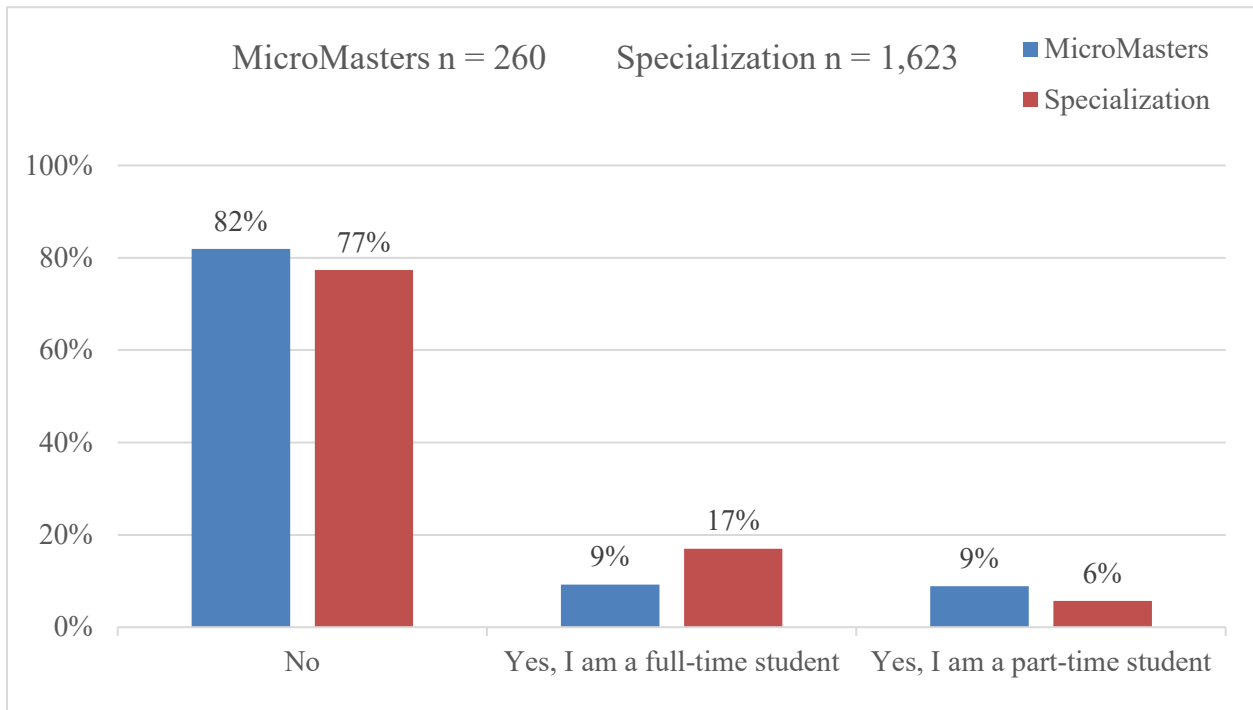


Figure 26. Percentage of Completers Participating in a College Degree Program



Subject Matter Knowledge

Twenty-six percent of MicroMasters completers (n = 259) claimed to have advanced or expert knowledge in the program topic, 58% claimed intermediate-level knowledge, and 16% indicated they were beginners in the subject. Among the Specialization program completers who answered this question (n = 1,611), 26% reported they had advanced or expert knowledge of the subject, while 48% indicated they were at an intermediate level and the remaining 27% reported they were still beginners.

Number of Online Courses Completed

Thirty percent of the MicroMasters completers (n = 259) reported they had not completed any online courses prior to the program; 33% indicated they had previously completed 1-2 online courses; 25% had completed 3-7 online courses, and the remaining 13% had completed 8 or more. Thirty-four percent of the Specialization completers who responded to this question (n = 1,612) had not completed any prior online course, 34% had completed one or two, 20% had completed 3-7, and 12% had completed 8 or more.

Source of Motivation to Enroll in Course Series

Eighty-four percent of the Specialization completers (n = 1,967) chose to enroll in the programs themselves, while 98% of the MicroMasters completers (n = 280) did so. Sixteen percent of the Specialization completers and 2% of the MicroMasters completers were asked by their employers to take the programs.

Plans to Apply for Further Degree

Forty percent of the completers (n = 2,257) indicated they were applying for some type of degree program, while 42% had not decided and 19% did not plan to do so (see Figure 27). The percentages of people who planned to apply did not differ substantially by the type of program.

Looking at types of degree to which learners were applying (Figure 28), 91% of the MicroMasters respondents who reported applying for any further degree indicated they were applying for a Master's degree; this compares with only 57% of the Specialization completers who were applying for a further degree. Notably, 20% of these Specialization completers intended to pursue a Bachelor's degree, suggesting these alternative credentials may be being used as a steppingstone to attain formal higher education. Of the 104 completers applying for a Bachelor's degree who indicated their country of residence, one quarter were living in the U.S. and 4-6 were living in each of the following countries: Brazil, the Philippines, India, Canada, Singapore, Mexico, and Indonesia.

Figure 27. Completers' Applying for a Degree

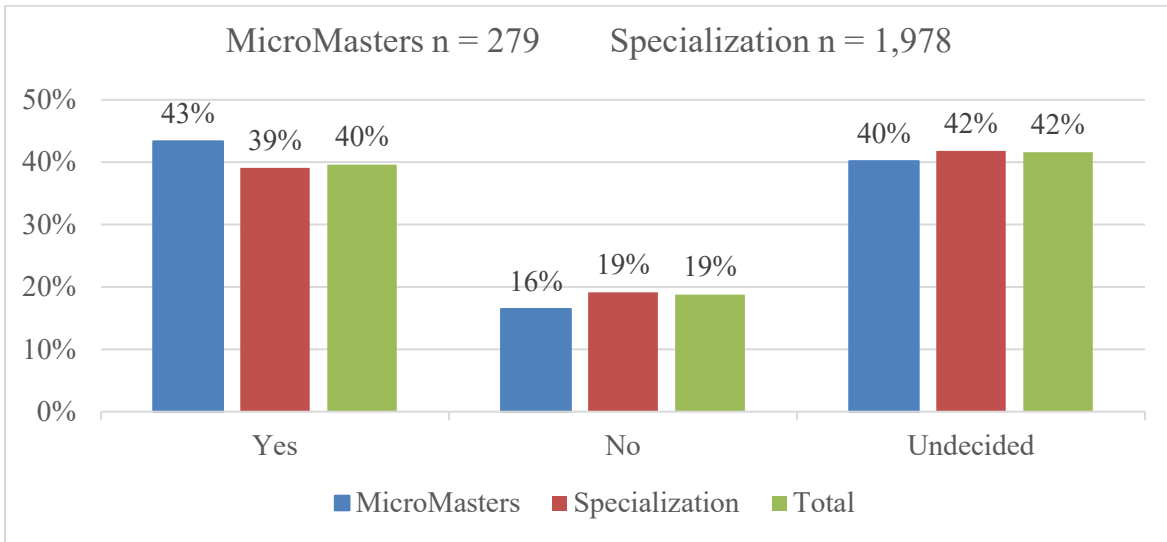
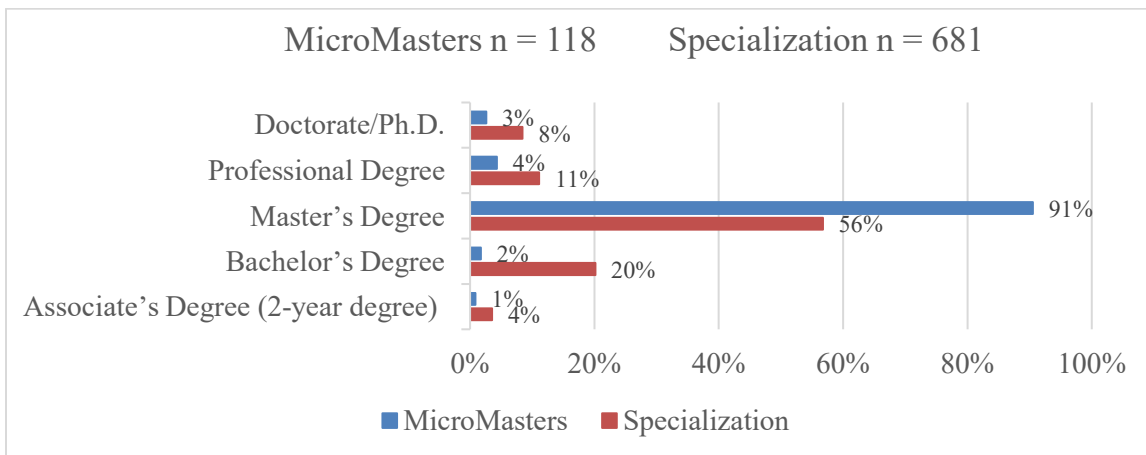


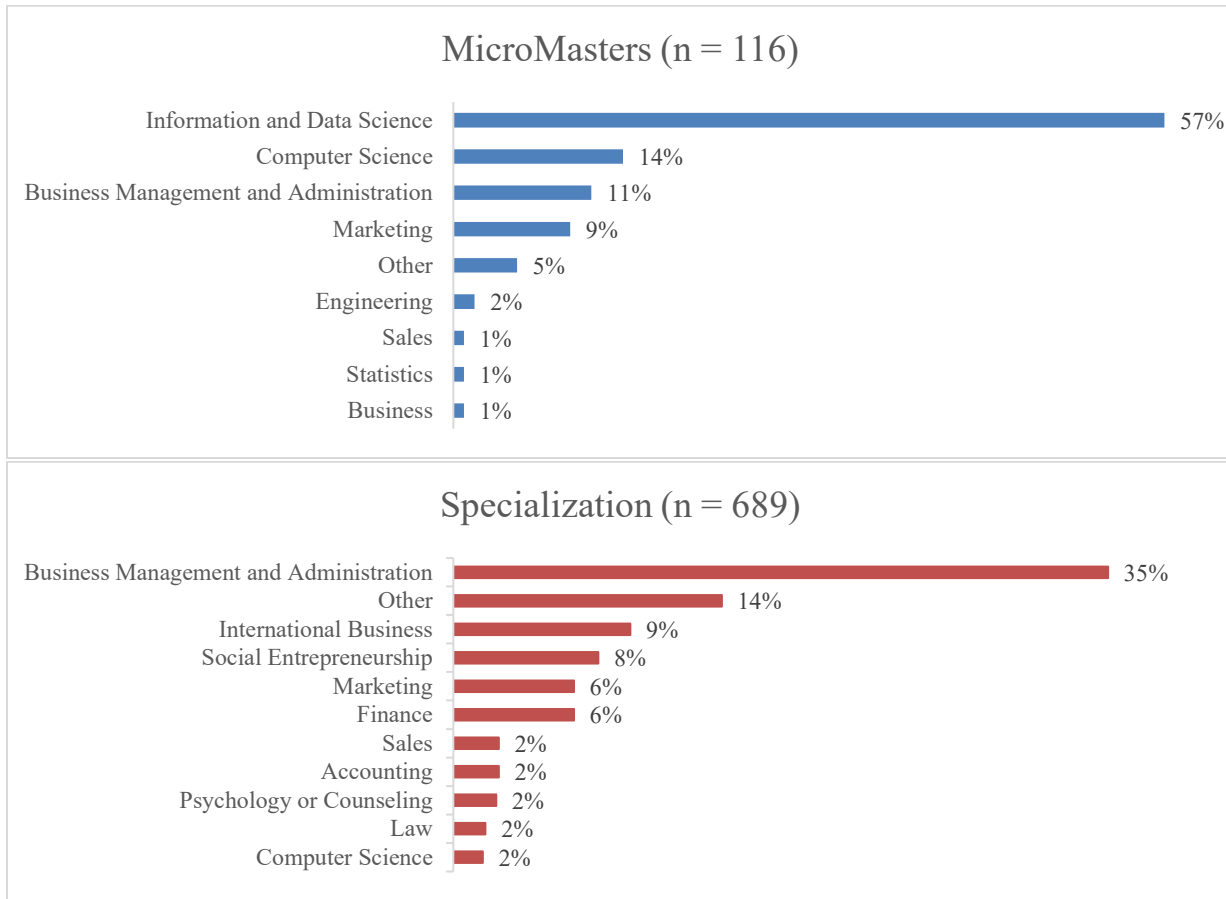
Figure 28. Types of Degrees to Which Completers Were Applying



Subject of Further Degree to Which Completers Are Planning to Apply

In total, 689 MicroMasters completers and 116 Specialization completers reported which subject they plan to study in a further degree. As shown in Figure 29, over half of the MicroMasters completers intend to apply to a program in information and data science, 14% to a computer science program, 11% to a business management and administration program, and 9% to a marketing program. The Specialization completers leaned more towards business degrees, with 35% applying to business management and administration programs, 9% to international business programs, and 8% to social entrepreneurship programs.

Figure 29. Subjects of Further Degrees to Which Completers Are Planning to Apply



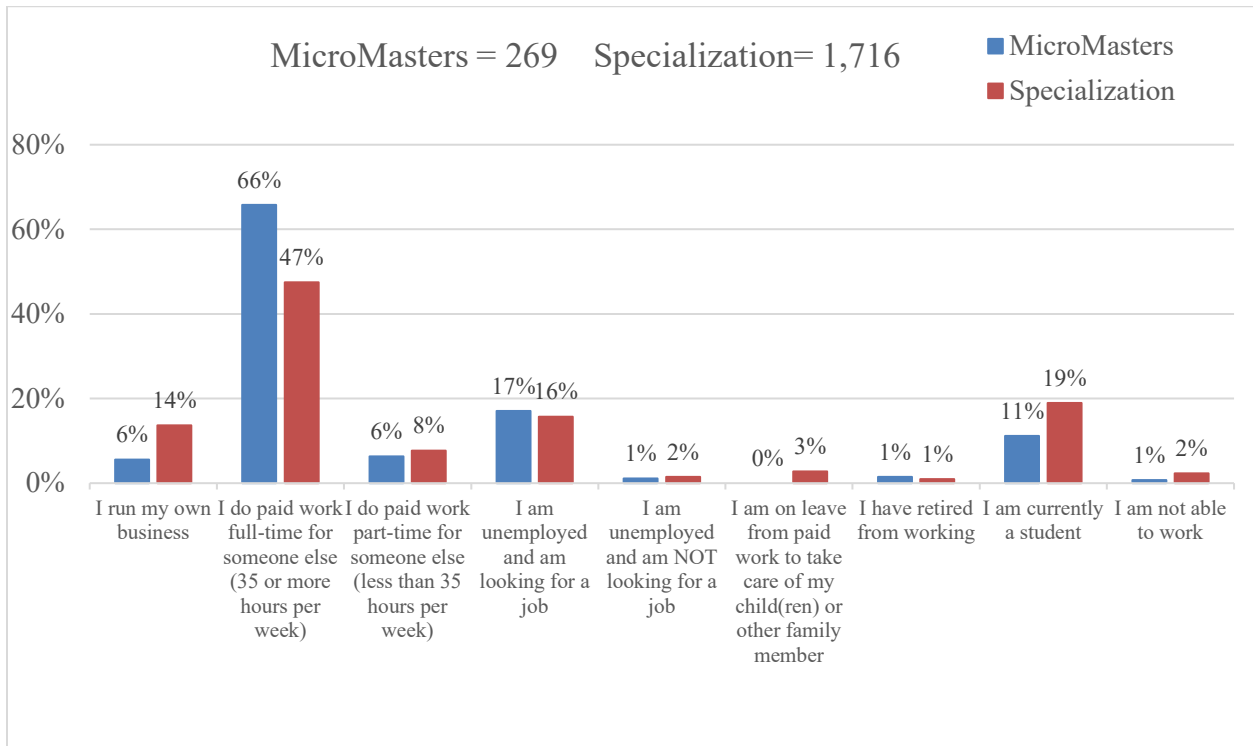
Note: Only top choices are shown in the charts; not all of the subjects reported.

3.2.4 Employment and Income

Employment Status

Seventy-eight percent of MicroMasters completers (n = 269) and 69% of Specialization completers (n = 1,716) reported working full-time or part-time for someone else or running their own business. As shown in Figure 30, Specialization completers were more likely to be running their own business than MicroMasters completers. Seventeen percent of MicroMasters completers and 16% of Specialization completers reported being unemployed and looking for a job.

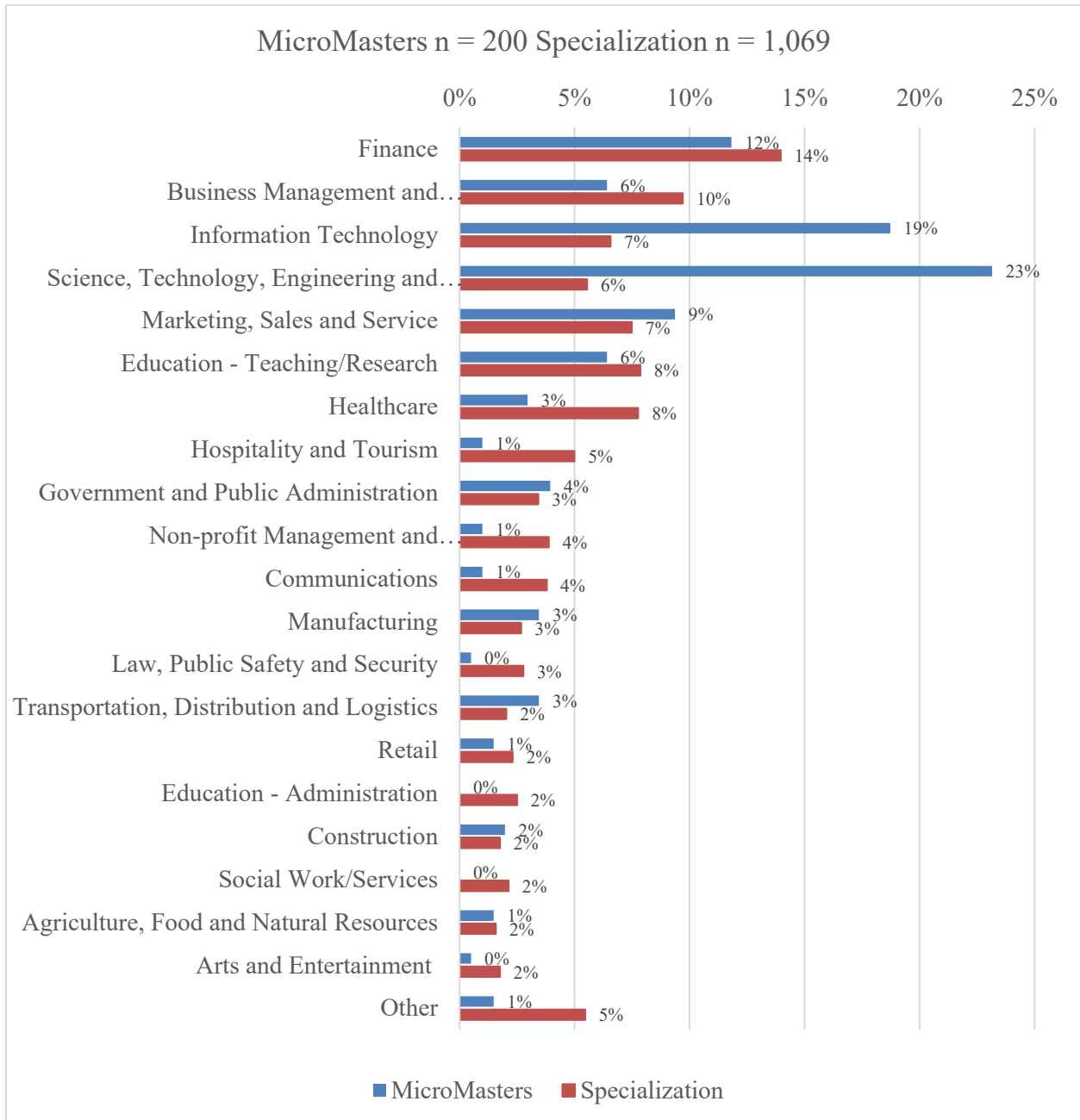
Figure 30. Completers' Employment Status



Current Employment Areas

Nearly one third of completers are working in business-related areas, including finance, business management, marketing, and sales. As shown in Figure 31, MicroMasters completers are particularly concentrated in STEM (Science, Technology, Engineering and Math) and Information Technology.

Figure 31. Completers' Current Employment Areas

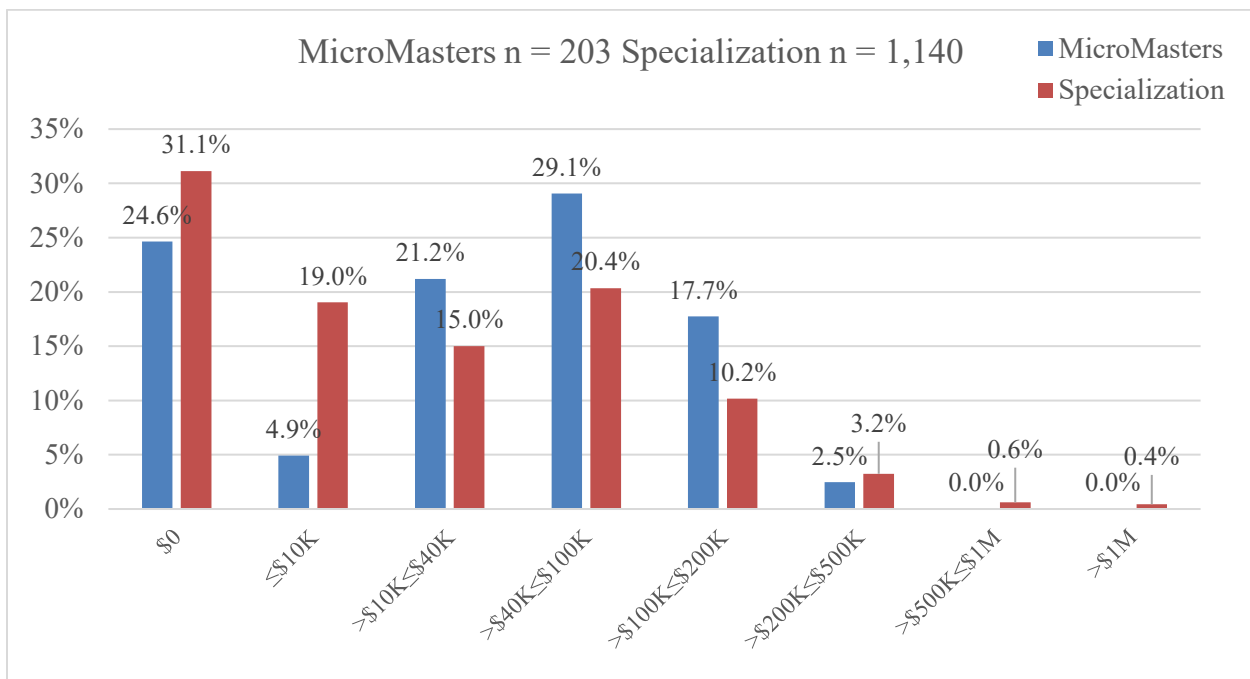


Earnings

Figure 32 shows the distribution of income across completers by program type. MicroMasters program completers were more likely to fall into higher-paying brackets than Specialization program completers. For example, over 50% of the MicroMasters completers expected their earnings to be more than \$40,000, whereas less than 35% of the Specialization completers expected the same. However, MicroMasters participants had no representation in the upper end of the distribution, where income was above US\$500,000. A small fraction of Specialization completers expected to receive income of this order. All

completers included, median income was \$40,000. Almost a third of completers, however, reported receiving no income. This is not surprising as people who did not have a job may have had more time and motivation to finish their program. Median income of Specialization program participants was \$38,000. For completers from the MicroMasters programs, median income was \$59,000. The difference between the two groups of completers is reversed, as compared to the difference we saw in the presurvey analysis, where MicroMasters learners had lower median income. For the U.S. participants in both types of programs, median annual income was \$80,000, which is higher than median annual income for the general population in the U.S. (reported as \$70,784 in 2021 by [Semega & Kollar, 2022](#)). This number is also higher than the median income reported by U.S. learners in the beginning-of-program survey. The difference in median income between the U.S.-based MicroMasters and Specialization learners was \$100,000 vs. \$75,000. This gap is much bigger than the one observed in the beginning-of-program survey.

Figure 32. Completers' Expected Income

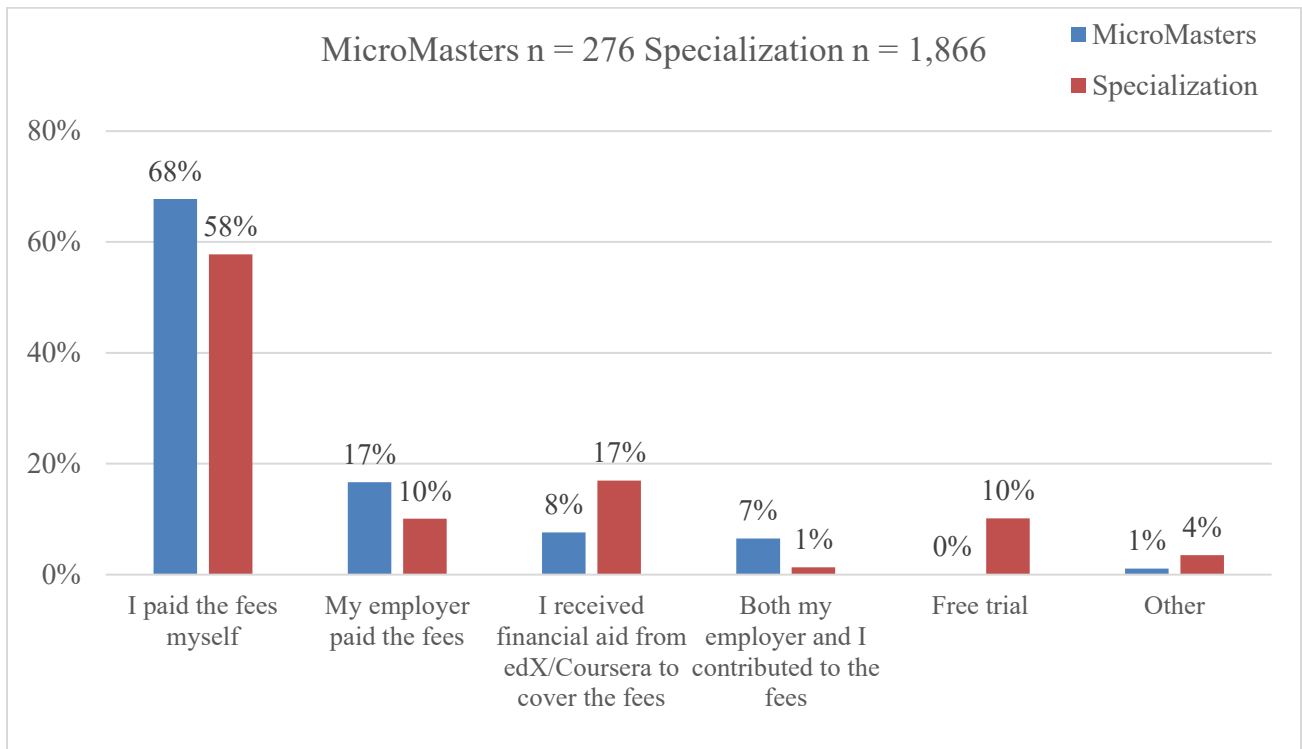


3.2.5 Opportunity Costs

Who Paid for the Course Fees

Approximately two-thirds of the completers reported that they paid the course fees themselves (see Figure 33). Thirteen percent of the completers indicated that their employer paid some or all of the fees. Across all programs, 16% of the completers received financial aid to support their participation, although this was the case for only 8% of the MicroMasters completers, as compared to 17% of the Specialization completers. A small portion of the respondents reported taking advantage of free trials to take the courses, and they were all from Specialization programs.

Figure 33. Who Paid for the Course Fees



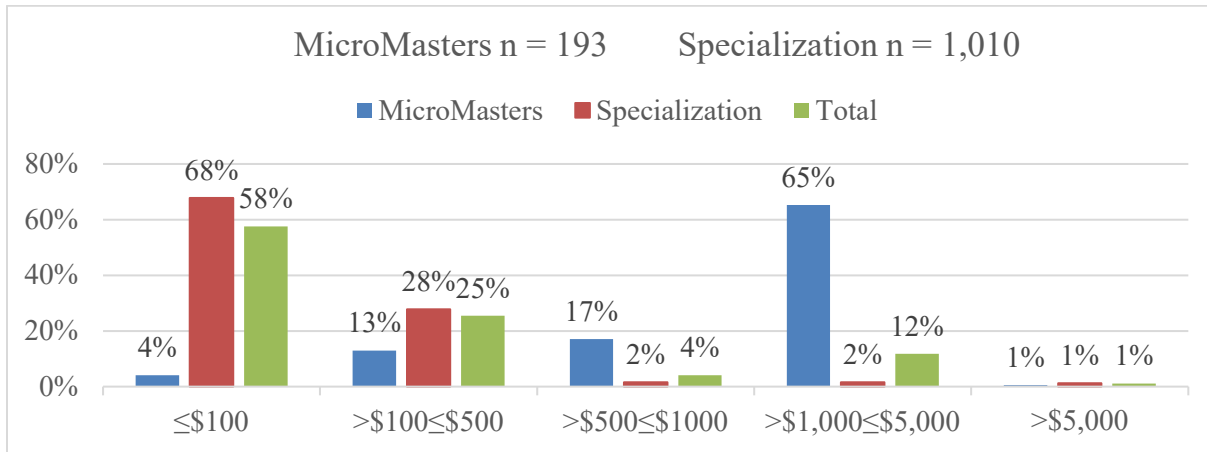
Course Fees Paid by Completers

Figure 34 illustrates the distribution of course fees paid by completers. Of the 1,203 completers who reported how much they paid in course fees, 187 reported zero.

Among the MicroMasters completers, 65% paid more than \$1,000 but less than \$5,000 for their program. Only 4% paid less than \$100. The median fee amount paid was \$1,200. These self-report findings are consistent with the officially reported fees across the 59 currently available MicroMasters programs, which average \$1,544.

In contrast, 68% of Specialization completers paid \$100 or less in course fees, and only 3% paid over \$1,000. The median fee amount paid was \$79. Part of this difference can be attributed to the high proportion of Specialization completers who benefited from free trial versions of the courses offered by the course platforms, especially during the COVID-19 pandemic. In addition, the fee structure for Specializations and MicroMasters differs significantly, as described earlier: an entire Specialization can cost less than \$400 if completed within a year, \$59 if all courses are concurrently available and the learner can complete the work within a single month, and zero dollars if the learner can complete courses during the 7-day free trial period.

Figure 34. Course Fees Paid by Completers²



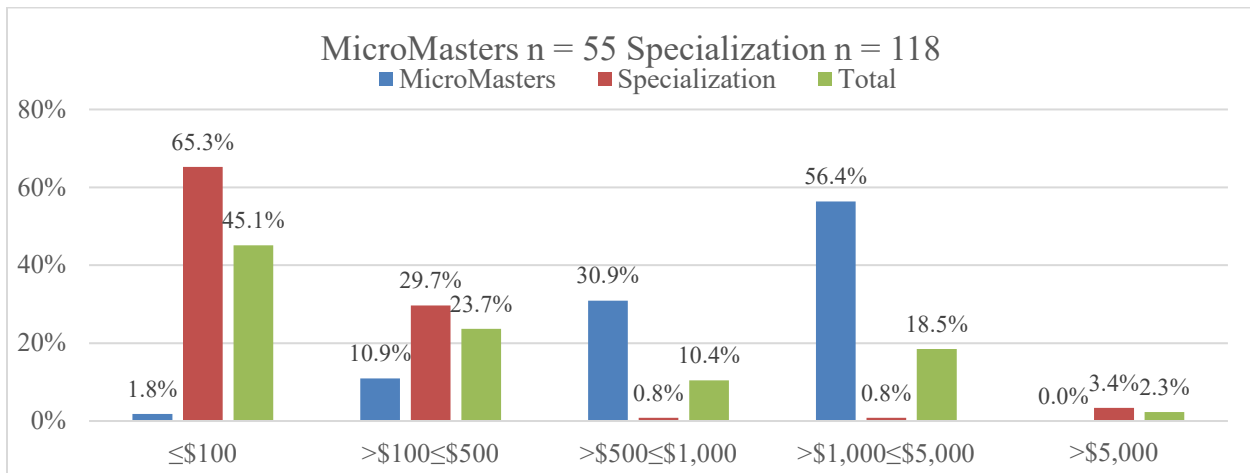
Course Fees Contributed by Completers' Employers

In total, 173 completers revealed how much their employers paid in course fees. Figure 35 illustrates the distribution of these contributions by program type.

Among the Specializations completers who responded to this question, 65% reported that their employers contributed up to \$100 to the course fees. The median contribution from employers was \$100.

Among the MicroMasters completers who responded to this question, 56% reported that their employers paid between \$1,000 and \$5,000. The median contribution was \$1,200.

Figure 35. Course Fees Contributed by Employers

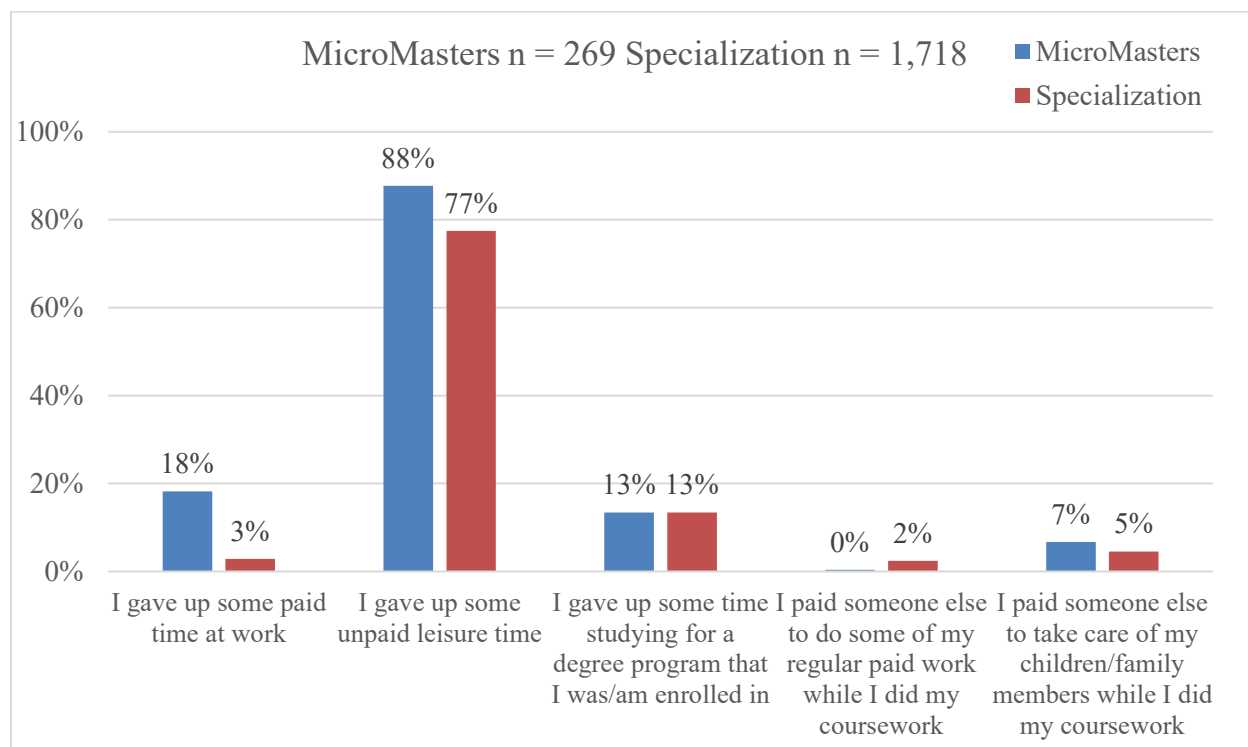


² It is unclear why any learner or employer would have paid over \$5,000 in course fees, so we reviewed the complete survey responses for respondents indicating fee amounts of more than \$2,500. We assessed whether the respondents were simply entering random data in the survey or whether we could attribute these outliers to data entry errors on the part of the survey respondents. Five respondents indicated that their employer contributed more than \$2,500 in fees and 25 additional respondents indicated that they themselves had paid more than \$2,500 in fees. All but 3 of the 30 outliers were enrolled in a Specialization and all but 2 lived outside the U.S. Responses to other questions, including income, did not suggest that they were entering random data or had entered the amounts in a foreign currency. Therefore, it is most likely that these entries were simply errors or uninformed guesses.

What Learners Gave Up to Complete the Courses

As illustrated in Figure 36, most completers invested unpaid leisure time to complete their coursework. The proportion was higher for MicroMasters completers than Specialization completers (88% vs. 77%). Eighteen percent of MicroMasters completers and 3% of Specialization completers reported that they gave up some paid time at work to complete the program. Thirteen percent of the completers gave up studying time for a degree program to complete the online courses. Seven percent of completers said they paid someone else to cover either work or home duties while they studied.

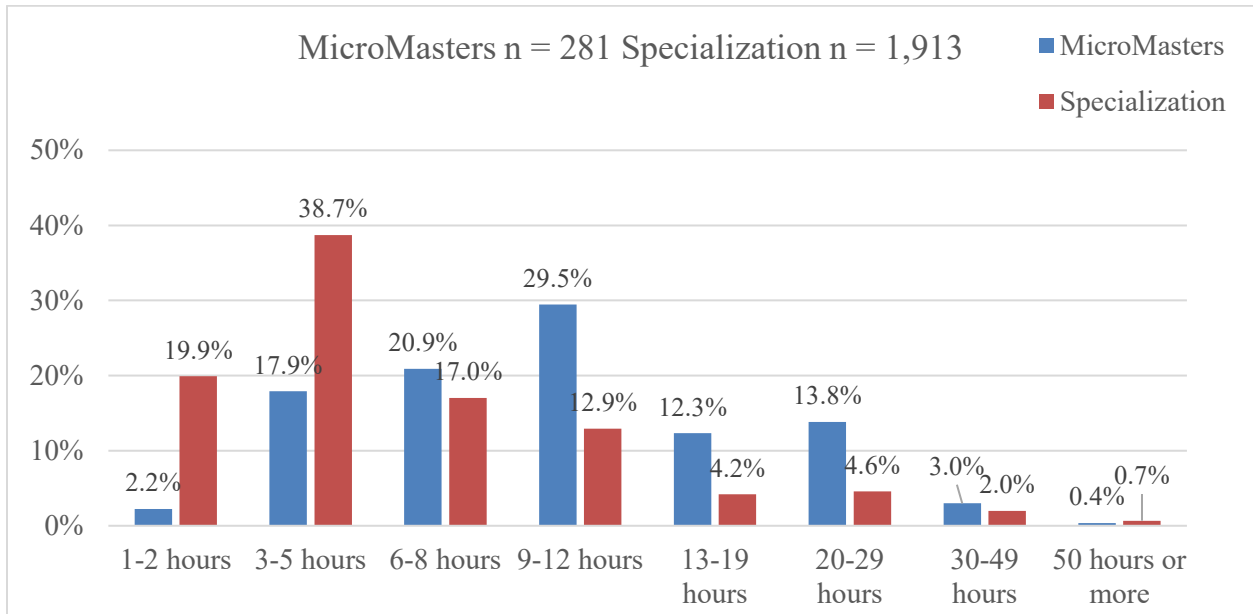
Figure 36. What Completers Gave Up in Order to Complete the Courses



How Many Hours per Week Did You Spend on the Program?

The majority of program completers invested no more than 12 hours per week to complete their coursework. However, as shown in Figure 37, approximately 30% of MicroMasters completers spent 13 or more hours per week, while 59% of Specialization completers spent 5 hours per week or less.

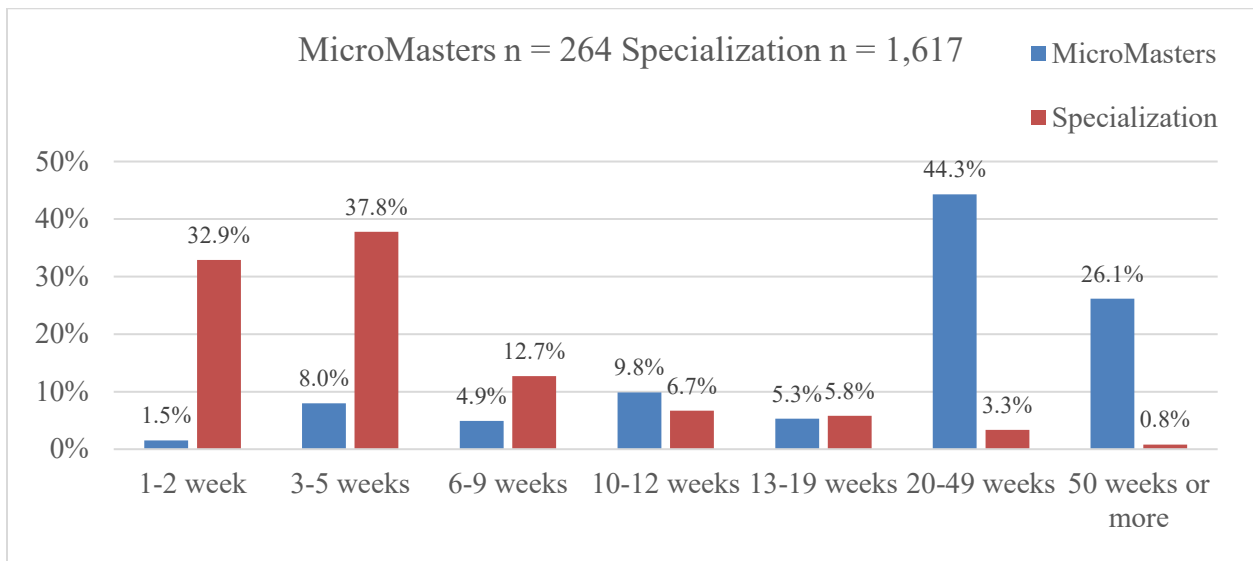
Figure 37. Hours Per Week Spent on Coursework



How Many Weeks Were Spent on Coursework

MicroMasters completers reported spending many more weeks on their coursework than did Specialization completers. As illustrated in Figure 38, 70% of Specialization completers claimed to have finished the program within 5 weeks, whereas 70% of MicroMasters completers spent 20 weeks or more on their programs.

Figure 38. Number of Weeks Spent on Coursework

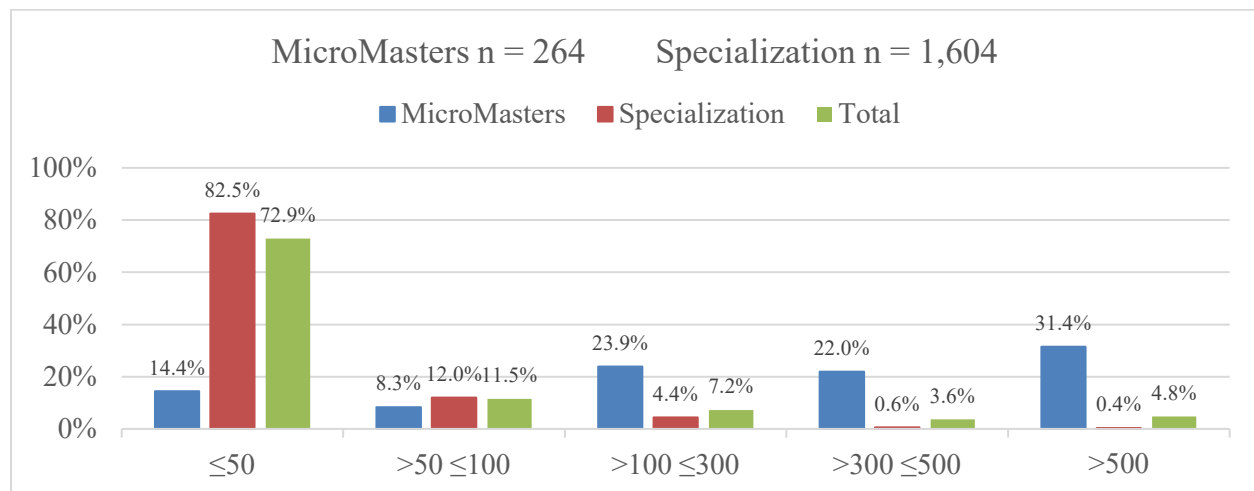


Total Number of Hours Spent on Coursework

To obtain the total number of hours spent by each respondent on coursework, we multiplied the number of weeks spent on the program by the number of hours spent per week. Eighty-six percent of MicroMasters completers spent more than 50 hours on the program, and over half reported that they spent over 300 hours on the program (see Figure 39). Meanwhile, 83% of Specialization completers spent less than 50 hours to complete their credential.

MicroMasters completers spent an average of 412 hours in total to complete the program (n = 264). The median was 320 hours. Specialization completers spent an average of 42 hours (n = 1604) to complete the program. However, the median number of hours was substantially lower at 18 hours due to a small number of outliers at the high end.

Figure 39. Total Number of Hours Spent on Coursework



3.2.6 Reported Benefits of Completing the Programs

What Are the Benefits of Completing the Programs?

The most frequently reported benefit of completing the MicroMasters and Specialization programs was learning something new, with 94% of the participants claiming this benefit (see Table 5). The second most frequently reported benefit, improving performance in the participant’s current job, was claimed by 38% of completers. Improving English language skills was the third most frequently reported benefit, which was selected by 23% of the respondents who answered this question. Other perceived benefits from completing the programs included networking with other professionals in the field (14%); helping learners start their own business (12%); improving job applications, either to first-time employment (12%) or to a different employer (12%); and improving applications to a degree program (9%). Benefits linked with direct economic gains were also claimed by a smaller percentage of completers, with some MicroMasters and Specialization completers indicating they received a pay raise (5%) or extra bonuses (4%). A few respondents (4%) indicated that the program supplemented what they were learning in a formal degree program. Approximately 10% of the respondents chose “Other benefits” and listed benefits such as personal development, including increasing self-confidence and gaining soft skills such as leadership, awareness, broader perspectives, motivation, empowerment, sensitivity, and interacting with others. For some, the programs provided an opportunity to explore a potential career shift.

Table 5. Benefits Reported by Completers

Reported Benefit	MicroMasters (n = 279)	Specialization (n = 1,977)	Grand Total (n = 2,256)
Learned something new	96.4%	93.6%	94.0%
Improved my performance in my current job	35.8%	38.1%	37.8%
Improved my English language skills relevant to the program I studied	17.9%	23.9%	23.1%
Networked with other professionals	12.2%	14.3%	14.0%
Helped me start my own business	6.1%	12.6%	11.8%
Improved my application for my first job	15.4%	11.2%	11.7%
Improved my application to a different employer from the one I was working for	15.4%	11.0%	11.6%
Improved my application for a degree program	11.8%	9.1%	9.4%
The courses were an important factor for my employer in moving me to a different job	9.0%	7.6%	7.8%
The courses were an important factor for my employer in getting my first job	4.3%	6.5%	6.3%
Received a job promotion in my current organization	4.3%	5.4%	5.3%
Offered a raise in pay	3.6%	5.5%	5.3%
Supplemented what I am already learning in a formal degree program	3.6%	4.6%	4.4%
Received an extra bonus	1.8%	4.7%	4.3%
Helped me recover from the professional consequences of the COVID-19 pandemic*	1.6%	5.2%	4.7%
Other benefits	6.1%	11.0%	10.4%

Note. Only participants who chose at least one of the answers to this question were included in the results reported in this table. In total, only 32 out of the 2,288 people who participated in the post-survey did not choose any of the options listed above.

*The COVID-19 question was only added to the survey in late 2020; the sample size for this item was 899: 124 learners from the MicroMasters program and 775 from the Specialization program.

How the Program Helped Learners Recover from the Professional Consequences of the COVID-19 Pandemic

Forty completers claimed that participating in their program helped them recover from the professional consequences of the COVID-19 pandemic. Twenty-two provided an explanation: the program helped 10 completers acquire new knowledge or skills, 4 to stay productive while unemployed, 4 to acquire a sense of purpose, 3 to figure out a career shift, and 1 to develop their career.

Compensation for Learners' Time Spent Participating in the Programs

Specialization Completers

One hundred and twenty-five of the Specialization completers indicated that their employer paid them for *all* of the time spent on the courses and 59 indicated that the employer paid them for *some* of the time spent on the courses. Sixty-five of these 184 completers indicated the amount they were paid for their time spent on coursework by the employer: the average was \$556 and the maximum was \$6,000. For 27 Specialization completers, the employer both contributed to fees and paid for some or all of the time spent in the program.

MicroMasters Completers

Only 5 MicroMasters completers indicated that they were paid for all of the time spent on the program and another 22 were paid for some of their time. Ten of these respondents indicated the amount the employer paid: The average was \$5,675 and the range was \$500-\$25,000. In 8 cases, the employer both contributed to fees and paid for some or all of the learners' time spent on the courses.

Applications to University Degree Programs

As shown in Table 5, approximately one in 10 completers indicated that completing the MicroMasters or Specialization program had improved an application to a degree program. We provide further details here.

Of the 57 MicroMasters completers at one university, none applied to the Master's degree program at another university (in a different country) which would have accepted the MicroMasters credential as partial credit towards the degree. Three people applied to an unrelated degree program at the same university offering the MicroMasters, and one person applied to a degree program at another college/university.

Of the 225 MicroMasters completers at a second university, 17 (i.e., 7.6%) applied to the related Master's degree program at another U.S. university which accepts the MicroMasters credential as partial credit. Two people applied to a related Master's degree at a university accepting the credential in a different country, 8 applied to an unrelated degree program at the same university offering the MicroMasters, and 9 applied to a degree program at another college/university.

Of the 2,006 Specialization completers, 118 applied to a degree program offered by the same school within the university offering the Specialization, 68 applied to a program offered by a different school at the same university (i.e., 9.3% applied to *some* program at the same university offering the Specialization), and 75 applied to a degree program at another college/university.

3.3 Comparison of Findings from Beginning-of-program Surveys and End-of-Program Surveys

Table 6 summarizes the similarities and differences in demographics between participants who began and ended the MicroMasters and Specialization programs. The two samples were remarkably similar except that a larger percentage of completers were female and reported being fluent or very good in English. Fewer completers were part-time or full-time students.

Table 6. Differences Between Who Began a Program and Those Who Completed One

Characteristic	Beginning-of-Course Respondents	Completers
Female	38%	46%
Male	61%	53%
Average age (years)	33	34
Youngest (years)	7	13
Oldest (years)	101	100
Hispanic*	14%	14%
White	37%	38%
Asian	33%	36%
Black/African American	8%	6%
Multiracial	6%	5%
# of countries in which participants lived	189	122
Most common countries of abode	U.S. 25%, India (15%)	U.S. (24%), India (10%), The Philippines (4%)
English proficiency: fluent or very good	76%	83%
Had already earned a graduate degree	38%	39%
Had already earned a BA or higher degree	80%	79%
Had already earned an Associate's Degree	3%	3%
Currently full-time or part-time student	24%	18%
Employed full-time	53%	50%
Business owner	10%	13%
Unemployed and looking for a job	14%	16%

Note. The sample size differs across questions and is shown in the main body of the report.

*Respondents were asked to report Hispanic/Non-Hispanic ethnicity separate from race.

Table 7 compares the benefits anticipated by learners beginning the MicroMasters and Specialization programs and those reported by completers. The biggest difference is that a much higher percentage of completers reported learning something new. Smaller percentages of completers than beginning-of-program respondents reported the following benefits: networking with other professionals, help starting their own business, supplementing a formal degree program, and earning a job promotion.

Table 7: Comparison of Benefits Anticipated at the Beginning of the Program vs. Benefits Reported by Completers

Anticipated or Reported Benefit	Beginning of Program (n = 23,767)	End of Program (n = 2,256)	Difference
Learn something new*	27.0%	94.0%	+67%
Improve my performance in my current job	41.1%	37.8%	-3%
Improve my English language skills relevant to the program of study	18.2%	23.1%	+5%
Network with other professionals in this field	24.9%	14.0%	-11%
Help me start my own business	22.2%	11.8%	-10%
Improve my application to a first job	12.8%	11.7%	-1%
Improve my application to a different job	28.0%	Not asked	-
Improve my application to a different employer from the one I was working for	Not asked	11.6%	-
Improve my application to a formal degree program	14.9%	9.5%	-5%
The courses were an important factor for my employer in moving me to a different job	Not asked	7.8%	-
The courses were an important factor for my employer in getting my first job	Not asked	6.3%	-
Job promotion in my current organization	12.0%	5.3%	-7%
Pay raise	10.2%	5.3%	-5%
Supplemented what I am already learning in a formal degree program	17.0%	4.4%	-13%
Extra bonus	Not asked	4.3%	-
Helped me recover from the professional consequences of the COVID-19 pandemic	4.4%	4.7%	+0.3%

*In the beginning-of-program survey, the response option was worded: “I hope to learn something new about [the program topic] but don’t have a specific goal afterwards.” This may have precluded this option from being selected by learners who did expect to learn something new and also had another reason for taking the courses.

3.4 Comparison of Responses for Completers Answering Beginning- and End-of-program Surveys

From our samples of 25,891 program entrants and 2,288 completers, we found 137 learners who completed our surveys at both the beginning and end of their program. As we did not collect names of participants, these matches were made by comparing email addresses, IP addresses, program name, and, when necessary, demographic information. Eighty-one percent of these learners had completed one of the two MicroMasters programs, 75% of them were male, 63% were fluent in English, almost half were White, and over 20% were Asian. Forty-two percent had earned a Bachelor's degree and 38% had earned a higher degree. The findings we report for this subgroup should be considered in the context of the very small and biased nature of the sample.

Time Taken to Complete the Program

The average number of days between completing the beginning-of-program and end-of-program surveys was 287 days (0.8 years). The range was 3 days to 708 days (1.94 years). Figure 40 shows the distribution of total days spent on the programs; Figure 41 presents the data by program type. The average number of days to completion was 61 for Specializations and 340 for MicroMasters.

Figure 40. Days Elapsed between Pre- and Post-survey Response for People Who Responded to Both Surveys

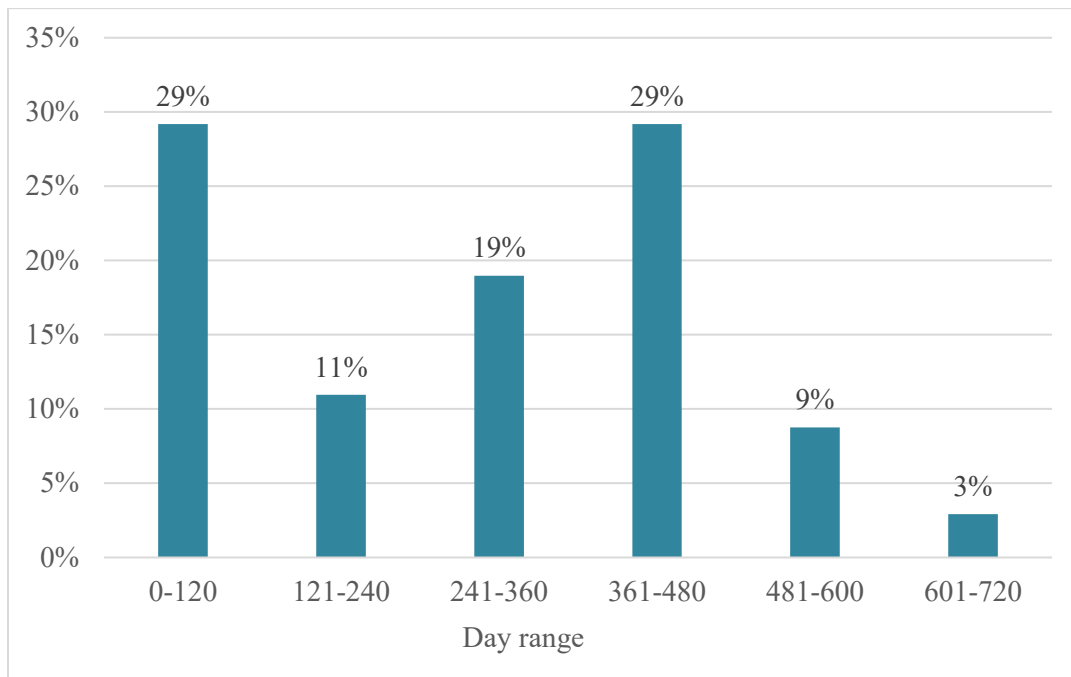
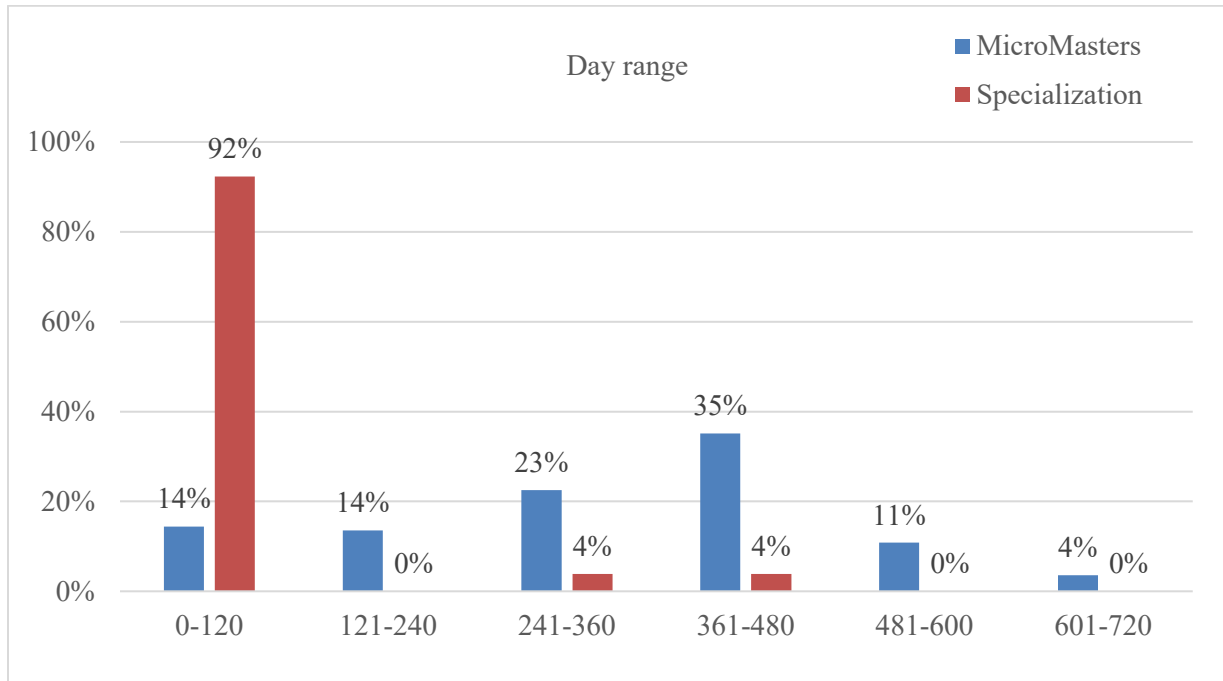


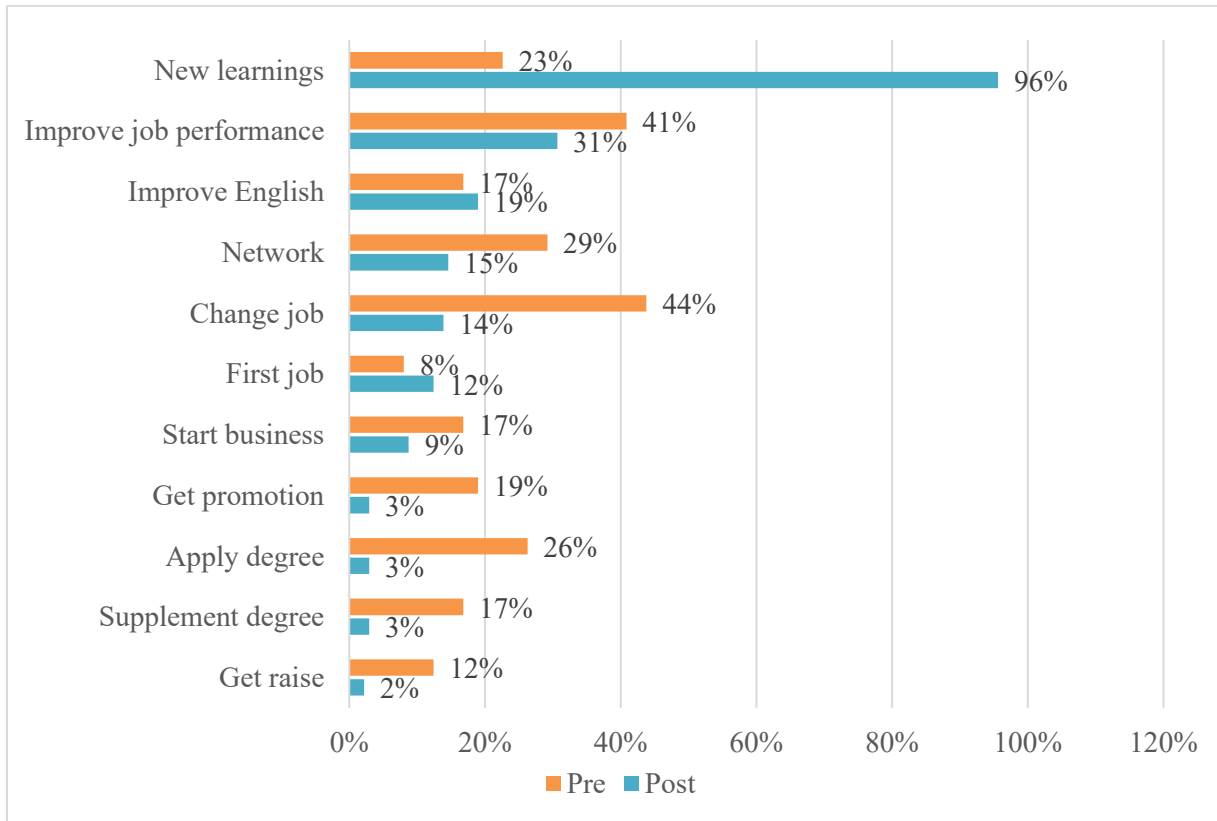
Figure 41. Days Elapsed between Pre- and Post-survey Response by Program Type



Comparison of the Benefits Expected vs. Benefits Reported

As shown in Figure 42, the frequency of each benefit reported at the end of the program was generally lower than the frequency with which it was anticipated at the beginning of the program. On one hand, the following expected benefits of completing the MicroMasters or Specialization program did not materialize for all learners who anticipated them: supplementing what they were already learning in a formal degree program, improving applications to a formal degree program, networking, changing jobs, starting a business, getting a pay raise or promotion, and improving job performance. On the other hand, almost all (131 out of 137) of this subsample reported learning something new, despite only 31 of them anticipating doing so. In addition, a few participants who did not anticipate the program would help them with applications to a first job reported this as a benefit by the end of the program.

Figure 42. Comparison of Expected (Pre) and Reported (Post) Benefits



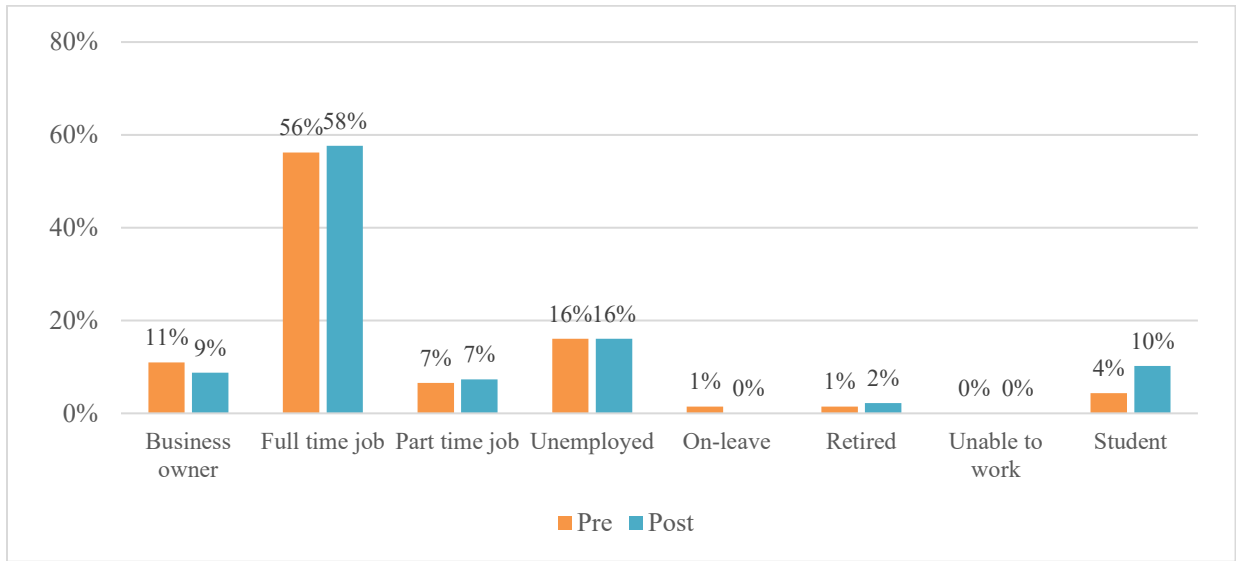
In addition to comparing respondents’ anticipated and reported benefits, we assessed whether their self-reported financial, educational, and employment status had indeed improved between the beginning and end of their programs. We also assessed whether their English proficiency or subject matter knowledge had increased.

Employment Status

The majority of completers in this subsample worked full-time or part-time or owned a business at both the beginning and end of the program. Overall, as shown in Figure 43 below, employment status was relatively unchanged by the end of the program period. The COVID-19 pandemic is likely to have affected the labor market during the survey administration period, so these results may not reflect what would have occurred under non-pandemic conditions.

The most noticeable difference from beginning to end of the program is that 14 of the 137 individuals indicated they were students at the end of the program, compared with only 6 at the beginning. This suggests that the MicroMasters and Specialization programs may have served as steppingstones to a formal degree.

Figure 43. Employment Status of Completers at the Beginning and End of the Program



Note. Respondents could check more than one answer to this question.

Income

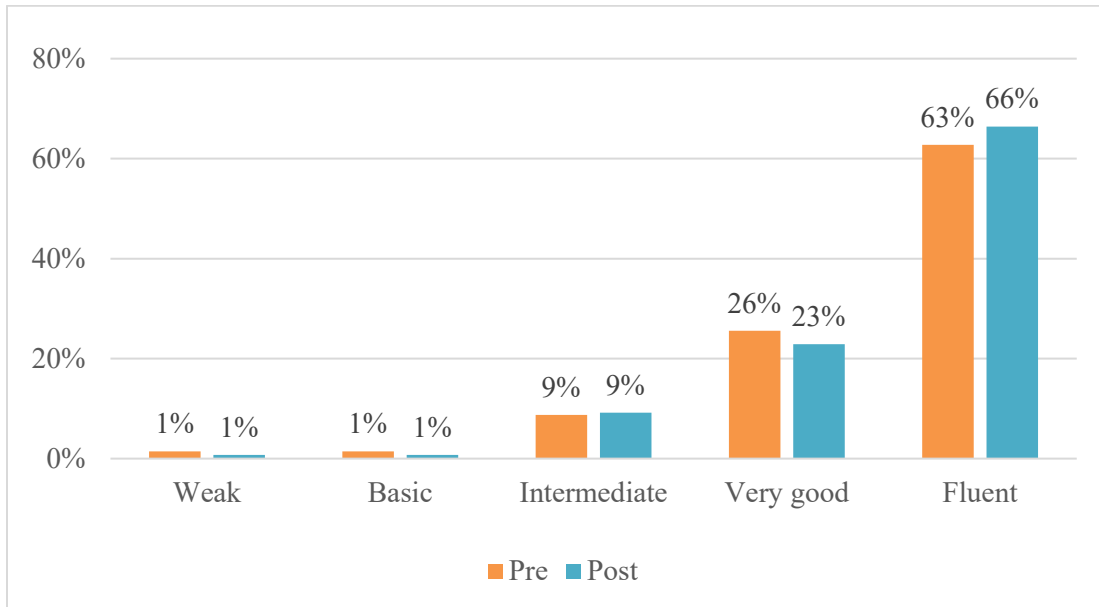
Median annual income for 60 people who answered a question about income (out of the 137 who completed both surveys) was \$60,000 at the beginning of the program and \$61,062 by the end of the program. Mean annual income was \$80,439 at the beginning of the program and \$75,966 at the end of the program. A paired samples t-test found no statistically significant difference in mean income level from beginning to end of program (paired t-test: $t = 0.63$, $df = 59$, $p\text{-value} = 0.53$).

English Proficiency

English proficiency was generally high for this subsample (see Figure 44), but a few more completers claimed fluency by the end of the program, compared with the beginning (66% vs. 63%). These results are consistent with the benefits expected and reported: 23 of the 137 respondents anticipated improving their English in the beginning-of-program survey, and 26 reported this as a benefit at the end of the program.

The fact that almost all respondents who completed both surveys claimed a high level of English proficiency suggests that non-English speakers were less likely to complete the surveys. Future surveys could be offered in a variety of languages to avoid this bias.

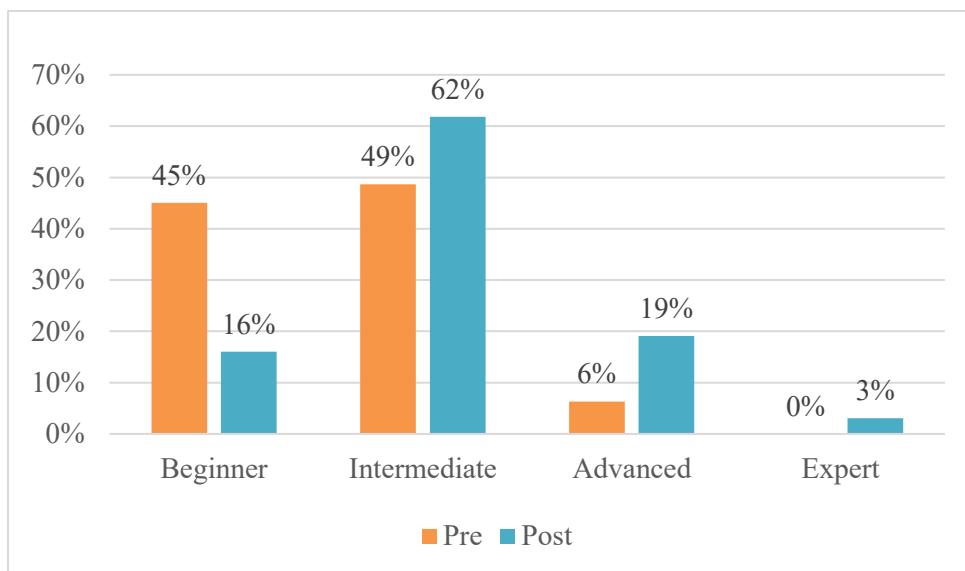
Figure 44. English Proficiency Level at the Beginning and End of the Program



Subject Matter Knowledge

It appears that completers gained substantial new subject matter knowledge over the course of the program (see Figure 45). By the end of the program, 16% of respondents indicated they were beginners in the subject matter, down from 45% at the beginning; 62% asserted intermediate-level knowledge by the end of the program, up from 49% at the beginning; and 22% claimed advanced or expert-level knowledge by the end of the program, up from only 6% at the beginning. These results are consistent with the high frequency with which learning something new was reported as a benefit at the end of the program.

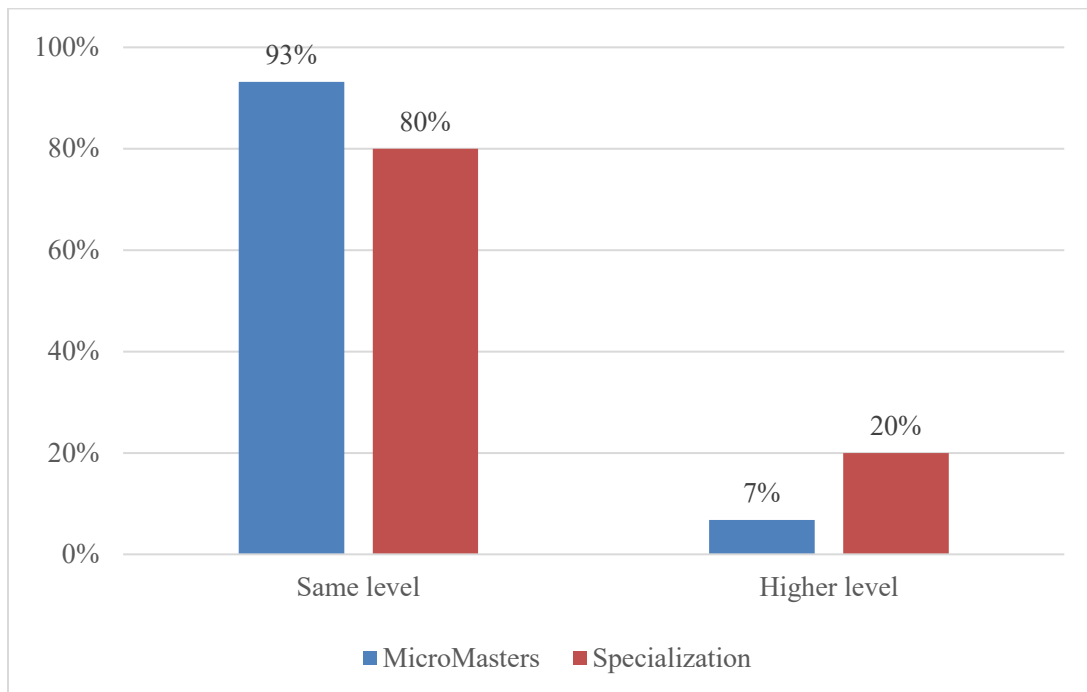
Figure 45. Subject Matter Expertise at the Beginning and End of the Program



Highest Level of Education

As shown in Figure 46, 7% of MicroMasters completers and 20% of Specialization completers in this subsample had achieved a higher level of formal education by the end of the program than what they reported at the beginning of the program. For example, more participants reported having a Bachelor's, Master's, or professional degree. This could be attributed to natural progression over time.

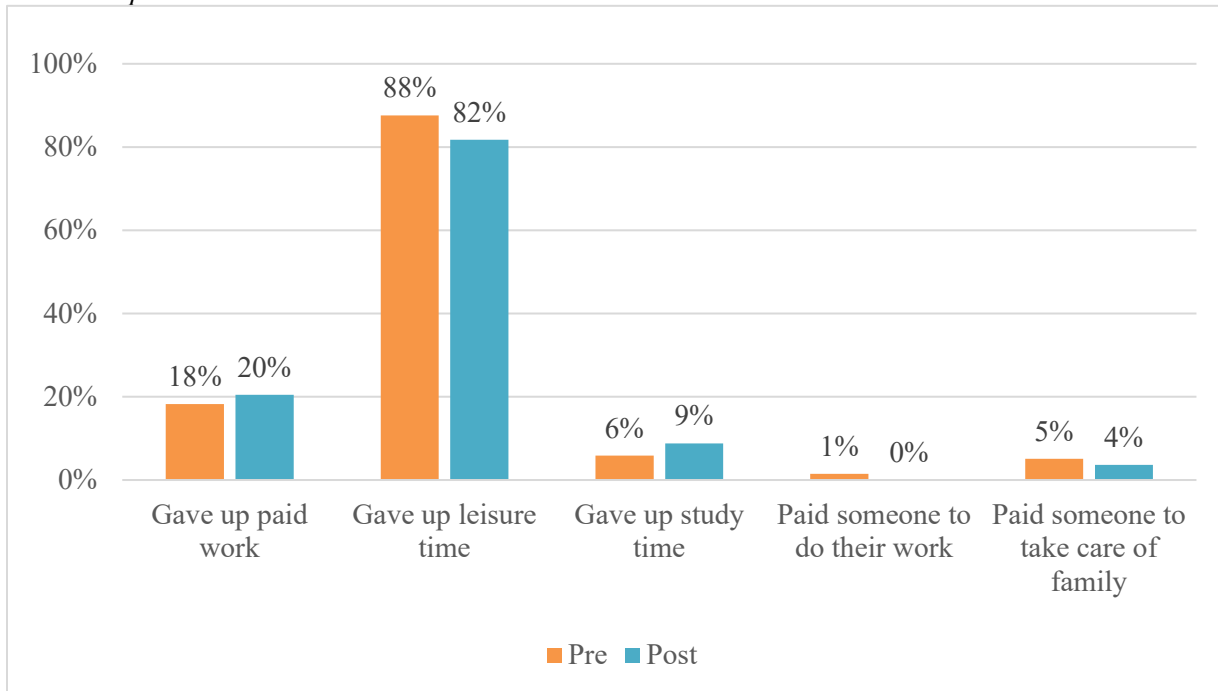
Figure 46. Change in Highest Formal Education Level Achieved by Program



Opportunity Costs of Time Spent on Programs

Responses regarding opportunity costs of spending time on the programs (n = 137) did not differ substantially from the beginning to the end of the programs (see Figure 47). Most respondents indicated at both time points that they were giving up leisure time to complete their program. Approximately one-fifth of the respondents reported they were giving up paid work time. A few respondents sacrificed study time in a degree program in which they were enrolled or paid someone to care for their family while they engaged in the coursework.

Figure 47. What Respondents Reported Giving Up at the Beginning and at the End of the Program in Order to Spend Time on Their Coursework



Applications to a Further Degree

Eight percent of this subset of completers indicated that the credential had improved an application to a formal degree program. Six percent of the MicroMasters participants reported that it had improved an application to the associated Master’s degree.

4. Discussion

In this section, we first compare our findings from the latest sample of respondents for each of the beginning-of-program and end-of-program surveys to our earlier results from 2018 and 2019, respectively. The purpose of this comparison is to assess the stability of the audience for MicroMasters and Specialization programs and trends over time, and also to assess the reliability of our findings. Subsequently, we compare findings from beginning-of-program and end-of-program survey respondents for the recent sample only.

4.1 Comparison of 2022 Beginning-of-program Results with Those from 2018

Demographics, expected benefits, and opportunity costs of spending time on the MicroMasters and Specialization programs in our study were generally similar for the 25,000+ beginning-of-program learners surveyed by 2022 as for the 3,086 surveyed by 2018. A few differences are worth noting but may be partly due to the fact that our earlier results included three MicroMasters programs that are not included in the later analysis, while the recent results include another MicroMasters program that was not in the 2018 results. This reflects a pattern of fairly high turnover in MicroMasters offerings from edX: at least 22

programs (i.e., over 1/3 of the programs offered) have been discontinued since we have been tracking them in 2018 and replaced by new programs, often from different universities.³

There was a higher percentage of learners from the U.S. for both types of program in the more recent sample: for Specializations, this was 41% in 2022 vs. 36% in 2018; for MicroMasters, this was 21% in 2022 vs. 16% in 2018. In the MicroMasters programs, a higher percentage of learners in the larger, more recent sample were male (66% vs. 53%) and a higher percentage were White or Asian (70% vs. 61%). Overall, the recent results confirm the typical profile of participants in both types of programs as being White or Asian males in their early to mid-30s. They have a high level of English proficiency, have already earned at least a Bachelor's degree, and are employed. The more recent results indicate that 63% of the MicroMasters learners consider themselves to be beginners in the subject matter of the program, compared with 55% in the smaller sample.

Not surprisingly, median annual income was higher in the recent sample, compared with 2018: \$50,000 vs. \$46,000 for Specializations and \$31,000 vs. \$23,000 for MicroMasters. However, the trend continued in higher earnings for Specialization participants, compared with MicroMasters participants, most likely due to the greater concentration of Specialization participants in high-income countries such as the U.S. as well as the mostly business-related topics that were the subject of the Specialization programs. Median annual income for U.S.-based participants in both types of programs was \$75,000 in the current sample, up from \$70,000 reported in 2018.

A few changes have occurred over the past 4 years with respect to who, at the beginning of the program, was reported to be paying the course fees. The recent results indicate that 43% of the learners were currently taking a free version of the course, compared with only 21% in the 2018 sample. Concomitantly, fewer learners were paying the fees themselves. The percentage receiving financial aid from Coursera or edX was slightly down to 6% from 7% in the 2018 sample. The percentage of learners for whom employers were paying or contributing fees was 6%, slightly up from 5% in 2018. A similarly small percentage of learners in both 2018 and 2022 samples (2%-3%) were asked to take the courses by their employers.

Reports of plans for further degrees were also relatively unchanged: 7% of the MicroMasters participants surveyed by 2022 indicated that they planned to apply to the related full Master's degree program, compared with 9% reported in 2018; 6% planned to apply to another degree program at the same university that was offering the MicroMasters or Specialization program, compared to 5% reported in 2018; and 5% planned to apply to a degree program at a different university, unchanged from the 2018 report.

Overall, our comparison of results from 2018 and 2022 suggests a fair degree of stability in the audience for MicroMasters and Specialization programs and in learner expectations for the programs.

4.2 Comparison of 2022 End-of-program Results with Those from 2019

By the end of 2019, we had amassed only 262 survey responses to the end-of-program survey, potentially reflecting low and slow completion rates. It has taken another 3 years to arrive at the current sample of 2,288. As we noted previously, while there was very little overlap in responses to the surveys at the beginning and end of each program, the loosely implied completion rate of 8.8% is in line with both documented completion rates for standalone MOOCs (e.g., [Jordan, 2015](#)) and reports from universities

³ Based on information gleaned from the Internet, including formal postings by relevant universities and informal chat forums, learners who are mid-program when a discontinuation is announced may be permitted to complete the program by specified dates, offered refunds or coupons for alternative courses, or simply redirected to alternative programs offering similar content. This instability in program offerings does pose a risk to learners that they may not be able to earn the expected credential within a timeframe they can manage.

about the completion rates for their own Specialization or MicroMasters programs ([Hollands & Kazi, 2018](#)). The fact that most beginning-of-program survey respondents did not plan to commit the recommended amount of time to the programs may have been a significant contribution to the low rate of completion.

Completer characteristics for the larger, more recent sample were not entirely consistent with those of the earlier sample, suggesting that, while the typical profile of learners willing to embark on one of these programs is fairly consistent across time and programs, the characteristics of completers are more particular. MicroMasters completers in the more recent sample were more likely to be male than in the 2019 sample (80% vs. 65%). For both MicroMasters and Specializations, the age range in the more recent sample was wider. A smaller percentage of the recent completer sample lived in the U.S. (24% vs. 31%), was White (38% vs. 45%), had earned at least a Bachelor's degree (79% vs. 85%) or a higher degree (39% vs. 47%), or claimed advanced or expert knowledge in the course topic (26% vs. 32%). Fewer completers in the more recent sample indicated plans to apply for a further degree program (40% vs. 47%).

A higher percentage of the recent MicroMasters completers worked full-time for someone else (66% vs. 48%), and overall median annual income for MicroMasters completers was higher in the recent sample (\$59,000 vs. \$45,500). For Specialization completers, median annual income for the recent sample was \$38,000, significantly lower than for the earlier sample: \$55,000.

Compared to the 2019 sample of completers, a higher percentage of the more recent sample of Specialization participants (16% vs. 12%) and a lower percentage of the MicroMasters completers (2% vs. 5%) was asked to take the program by their employer. In the more recent sample, Specialization completers spent less time in total on the program, compared to the earlier sample (42 hours vs. 63 hours). Conversely, the more recent sample of MicroMasters completers spent more time in total on the program than did the earlier sample (412 hours vs. 260 hours).

In the earlier sample, 10% of completers across 10 programs were asked by their employers to take the courses. This percentage rose to 14% in the more recent sample, although this was heavily skewed toward Specializations. Employers paid the fees for 13% of these earlier completers and contributed towards the fees of another 2%. Similarly, in the more recent sample, employers paid the fees for 11% of the completers and contributed towards the fees of another 2%. Four percent of the earlier completers were paid by their employers for all their study time, and another 4% were paid for some of their study time. In the more recent sample, 6.5% of the completers were paid by their employers for all their study time and another 4% for some of their study time. Combining fee contributions and paid time to study, these levels of employer support are higher than those for learners in standalone MOOCs, as reported by [Hamori \(2018\)](#).

Despite the differences in learner characteristics between the 2019 and 2022 samples of completers, the pattern of benefits reported as a result of completing the programs was remarkably similar.

Reports of applications for further degrees were similar across the earlier and later samples: 7% of the MicroMasters participants surveyed by 2022 indicated that the programs improved their application to the related full Master's degree program, compared with 9% reported in 2019; 9% of all completers by 2022 reported that completing their program improved their application to another degree program at the same university offering the MicroMasters or Specialization program, compared to 5% reported in 2019; moreover, 4% reported improved applications to a degree program at a different university, down from 5% since the 2019 report.

4.3 Comparison of Beginning-of-Program Findings vs. End-of-Program Findings for Recent Sample

Learners who completed a MicroMasters or Specialization program were generally similar in demographics to those who began one of these programs, except they were more likely to be female (46% vs. 38%) and fluent or very good in English (83% vs. 76%). They were also less likely to be a student (18% vs. 24%). There were notable differences in the benefits anticipated at the beginning of the program and those reported by the end of the program. The most frequently anticipated benefits of participating in the programs were: improving job performance (41% of respondents), improving applications to a different job (28%), and learning something new (27%). The most frequently reported benefit from completing the programs was learning something new (94%), followed by improving job performance (38%), and improving English language skills (23%). Benefits reported by a greater percentage of completers than program entrants included learning something new and improving English language skills. A higher percentage of program entrants anticipated the following benefits compared with the percentage of completers who reported the benefit had actually been attained: networking with professionals in the field, help in starting a business, help in applying to a different job, improving applications to a formal degree, obtaining a pay raise or job promotion, and supplementing a formal degree program. The percentage of program entrants and completers reporting the following anticipated or perceived benefits was more or less the same: improving applications to a first job, improving job performance, and help recovering from the professional consequences of the COVID-19 pandemic.

Learners embarking on a Specialization anticipated spending an average of 45 hours on the programs—remarkably in line with completers' average reported time of 42 hours to finish their program. This investment of time also aligns with the amount of time recommended by the program providers: 38 to 78 hours. Learners embarking on a MicroMasters program, on average, expected to spend 86 hours on the program, far short of the average of 412 hours reported by completers. It appears that many MicroMasters participants underestimated the required time commitment, which may have been a primary factor in the apparently low completion rates. MicroMasters completers, on average, spent more time on their coursework than the 100-400 hours recommended by program providers.

Employer support appears to have played a role in facilitating completion of the programs: 8% of Specialization learners and 6% of MicroMasters learners at the beginning of their programs indicated that employers were paying or contributing towards the course fees. The percentages were higher for completers: 24% for Specialization completers and 11% for MicroMasters completers. Financial aid also appears to have been important, with 16% of completers receiving financial aid to support their participation compared with only 6% of learners at the beginning of their programs.

4.4 Comparison of Beginning and End-of-Program Responses for Subset Completing Both Surveys

For the small sample of participants who completed surveys at both the beginning of the program and the end of the program, our comparison of findings from beginning to end of program produced similar results to the unmatched comparison. While the very limited and biased sample cautions against overgeneralization, learners anticipated more benefits than they reported by the end. However, almost all of them reported having learned something new, compared with less than a quarter who expected to do so. Approximately one-third of the completers reported that the program helped them improve their job performance. Little change occurred in employment status or earnings, but a few more learners reported being students in formal degree programs by the end of the program.

5. Conclusion

Non-degree alternative credentials in the form of MicroMasters and Specialization programs continue primarily to cater to already well-educated learners. While it appears that only a small percentage of learners who embark on these programs follow them through to completion, those who do so claim the credentials confer a variety of educational and career benefits. Almost all participants reported learning something new, and two in five claimed they improved their job performance. Program providers offer completers an ever-widening variety of ongoing opportunities to apply the credential earned to a further degree. Almost 10% of completers apply to a formal degree program, which may or may not include one of these designated opportunities.

Financial returns to completing the courses appear to be more elusive, at least in the short-term, especially as the opportunity costs to learners in terms of uncompensated time investment could be high. The average MicroMasters learner earned \$59,000 per year and spent 412 hours on the program. They are effectively giving up the potential to earn almost \$11,700 during that time. The calculus is more attractive for Specialization learners who, on average, earned \$38,000 per year and spent only 42 hours on the program, thereby giving up less than \$800 in potential earnings. It remains to be seen whether these investments lead to higher earnings over the long-term. This may depend on whether the learner leverages the credential to earn a formal degree with established labor market value, and whether employer recognition of these types of credentials increases.

Our recent findings confirm our view that these types of programs should be perceived more as low-cost, flexible professional development than as replacements for formal degrees. We expect employers will (and should) be increasingly willing to cover the fees and pay for learners' time invested in programs on topics that are directly relevant to the employers' business.

The programs may also benefit universities by serving as a source of revenue and as a marketing mechanism to attract online learners to apply to more formal programs. However, their success appears to be variable across topics and may be limited to high-demand subject areas. The balance of paying vs. auditing learners in the individual courses should be carefully managed to ensure that the offering university's (and platform provider's) costs of producing and maintaining the programs are covered. Additionally, program topics and content should be selected to avoid cannibalizing higher-value programs at the universities. It may behoove the offering universities and platform providers to focus effort on demonstrating to employers—and learners—how the time commitment, costs, and benefits of these low-cost credentials differentiate them from investments in a costlier full degree program or corporate talent development.

Next Steps

We plan to follow up one more time by email with learners in our study who completed a MicroMasters or Specialization program and gave permission for future contact. We will assess whether additional educational, financial, career, or other benefits have accrued with additional time elapsed since completion.

Appendix A

A total of 540 IP addresses in the pre-survey and 77 in the post-survey were associated with two and sometimes even more responses. In most situations, this appeared to be due to data being entered from the same device, such as the same school library computer or the same company computer. In a small percentage of cases, it appears that the same participant responded to the beginning-of-program or end-of-program survey more than once. To avoid duplicate data, an additional detailed data cleaning was conducted. The process consisted of reviewing all survey responses with duplicated IP addresses and comparing: first, the email addresses (if available) and, second, the demographic information (e.g., year of birth, country of birth, sex, race, highest level of education, income, etc.). When a comparison of these variables was not possible due to missing information, other data points such as program of enrollment, who was responsible for paying course fees, and time spent on the course were considered to assess possible duplicate responses. Responses from the same participant but for different programs were included in the analysis. Duplicated responses were those where the same participant answered the survey for the same program more than once, possibly because they answered the survey in more than one course in the program or simply forgot they had already completed the survey. Our data only indicated the program, not the name of the specific course within the program. Based on this review, 315 duplicated survey entries were removed from the presurvey dataset and 106 entries were removed from the postsurvey datafile.